United States Department of Agriculture

Natural Resources Conservation Service

In cooperation with United States Department of the Interior, Bureau of Land Management, U.S. Fish and Wildlife Service, and Bureau of Indian Affairs; and Oregon Agricultural Experiment Station

Soil Survey of Harney County Area, Oregon



How To Use This Soil Survey

General Soil Map

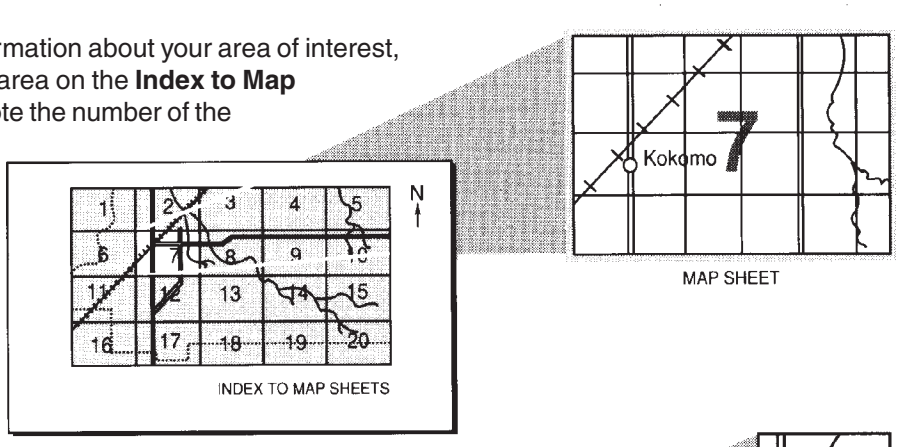
The general soil map, which is a color map, shows the survey area divided into groups of associated soils called general soil map units. This map is useful in planning the use and management of large areas.

To find information about your area of interest, locate that area on the map, identify the name of the map unit in the area on the color-coded map legend, then refer to the section **General Soil Map Units** for a general description of the soils in your area.

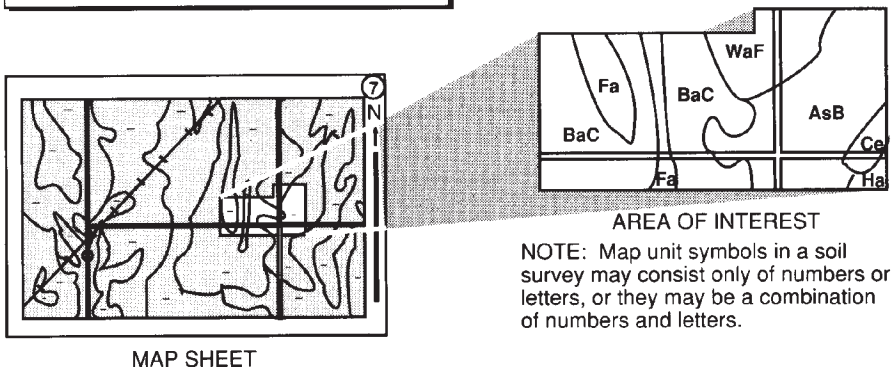
Detailed Soil Maps

The detailed soil maps can be useful in planning the use and management of small areas.

To find information about your area of interest, locate that area on the **Index to Map Sheets**. Note the number of the map sheet and turn to that sheet.



Locate your area of interest on the map sheet. Note the map unit symbols that are in that area. Turn to the **Contents**, which lists the map units by symbol and name and shows the page where each map unit is described.



NOTE: Map unit symbols in a soil survey may consist only of numbers or letters, or they may be a combination of numbers and letters.

The **Contents** shows which table has data on a specific land use for each detailed soil map unit. Also see the **Contents** for sections of this publication that may address your specific needs.

This soil survey is a publication of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (formerly the Soil Conservation Service) has leadership for the Federal part of the National Cooperative Soil Survey.

Major fieldwork for this soil survey was completed in 1996. Soil names and descriptions were approved in 1997. Unless otherwise indicated, statements in this publication refer to conditions in the survey area in 1997. This survey was made cooperatively by the Natural Resources Conservation Service and the Bureau of Land Management, U.S. Fish and Wildlife Service, Bureau of Indian Affairs, and Oregon Agricultural Experiment Station. The survey is part of the technical assistance furnished to the Harney Soil and Water Conservation District.

Soil maps in this survey may be copied without permission. Enlargement of these maps, however, could cause misunderstanding of the detail of mapping. If enlarged, maps do not show the small areas of contrasting soils that could have been shown at a larger scale.

The most current soil information and interpretations for this survey area are available either through the Soil Data Mart or in the Field Office Technical Guide (FOTG) at the local field office of the Natural Resources Conservation Service. The Soil Data Mart is the Natural Resources Conservation Service data storage site for the official soil survey information. The FOTG is linked to the Soil Data Mart; therefore, the same information is available from both sources. Soil survey maps and tabular data can be accessed through the Soil Data Mart at http://soildatamart.nrcs.usda.gov. The official soil survey information stored at the Soil Data Mart and this soil survey report are also available through Web Soil Survey at http://soils.usda.gov/survey.

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Cover: Typical area of Alvodest silty clay loam, 0 to 3 percent slopes. Steens Mountain in background.

Additional information about the Nation's natural resources is available online from the Natural Resources Conservation Service at http://www.nrcs.usda.gov.

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Foreword

This soil survey contains information that affects land use planning in this survey area. It contains predictions of soil behavior for selected land uses. The survey also highlights soil limitations, improvements needed to overcome the limitations, and the impact of selected land uses on the environment.

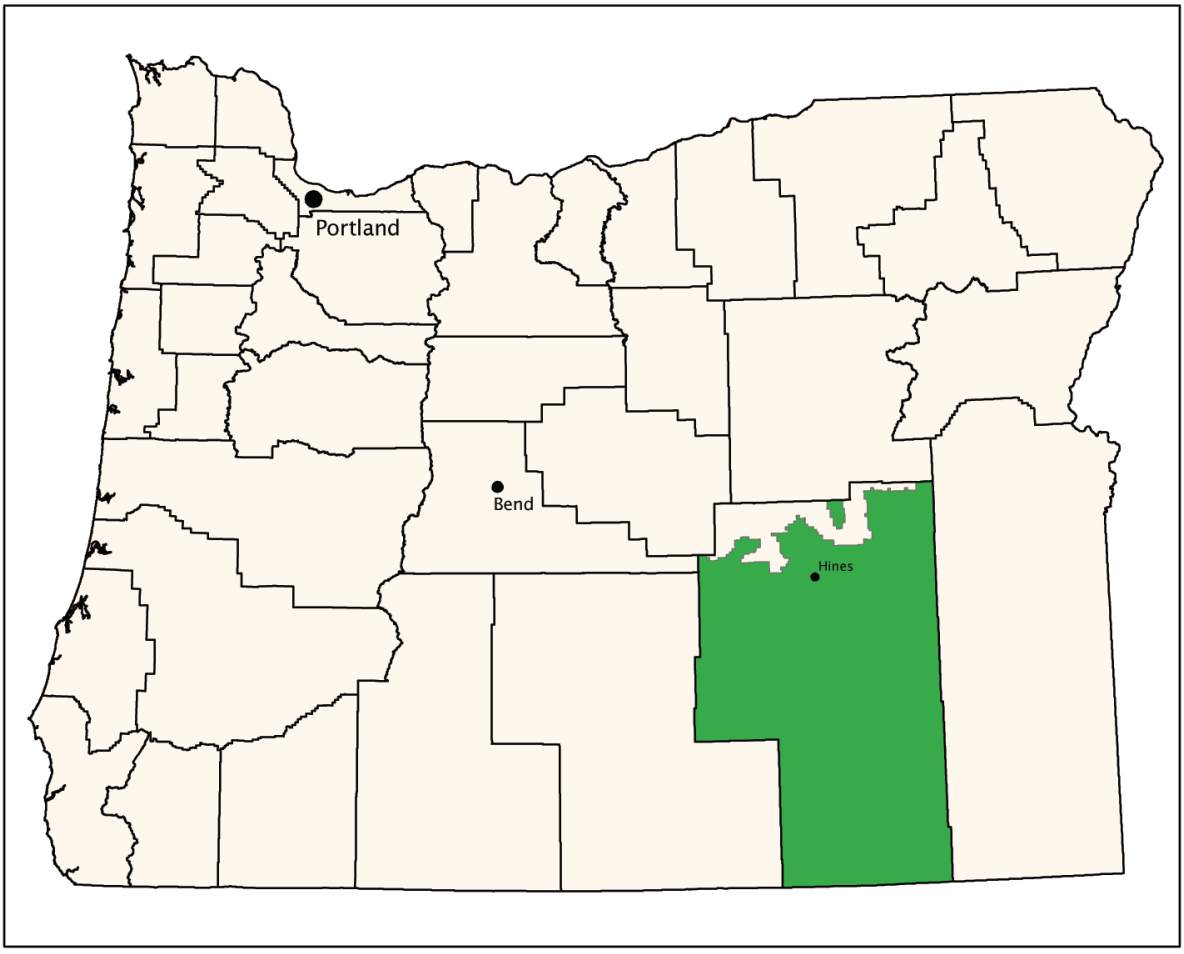
This soil survey is designed for many different users. Farmers, ranchers, foresters, and agronomists can use it to evaluate the potential of the soil and the management needed for maximum food and fiber production. Planners, community officials, engineers, developers, builders, and home buyers can use the survey to plan land use, select sites for construction, and identify special practices needed to ensure proper performance. Conservationists, teachers, students, and specialists in recreation, wildlife management, waste disposal, and pollution control can use the survey to help them understand, protect, and enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. The information in this report is intended to identify soil properties that are used in making various land use or land treatment decisions. Statements made in this report are intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are shallow to bedrock. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

These and many other soil properties that affect land use are described in this soil survey. Broad areas of soils are shown on the general soil map. The location of each soil is shown on the detailed soil maps. Each soil in the survey area is described. Information on specific uses is given for each soil. Help in using this publication and additional information are available at the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

Bob Graham
State Conservationist
Natural Resources Conservation Service



Location of Harney County Area in Oregon.

Soil Survey of
Harney County Area, Oregon

By Mark Keller, Natural Resources Conservation Service, and Ed Horn, Bureau of Land Management

Fieldwork by Richard Hosler, Tom Clark, Allen Makinson, Mark Keller, and Michael Schramm, Natural Resources Conservation Service, and Chuck Leonard, Ralph Klein, Ed Horn, Marylin Kastens, Curt Leet, Gerhard Gareis, Tom Champa, Paula Reid, and John Barber, Bureau of Land Management

United States Department of Agriculture, Natural Resources Conservation Service, in cooperation with
United States Department of the Interior, Bureau of Land Management, U.S. Fish and Wildlife Service, and Bureau of Indian Affairs; and Oregon Agricultural Experiment Station

Harney County Area is in the southeastern part of Oregon, adjoining Nevada to the south. The survey area has a total area of about 6,032,528 acres, or about 9,425 square miles. About 4,010,000 acres is administered by the Bureau of Land Management, 180,000 acres is administered by the U.S. Fish and Wildlife Service, 1,830,000 acres is State and private land, and 12,000 acres is administered by the Bureau of Indian Affairs. The National forestland in Harney County is not included in the survey area. Burns, the county seat, is north of Malheur and Harney Lakes. More than one-half of the total county population of about 7,000 lives in or around Burns and Hines. Most of the economy is directly or indirectly dependent upon ranching and farming. Manufacturing, including wood products manufacturing; timber harvesting; and tourism are also important to the local economy.

Soil scientists have identified about 170 different soil types in the survey area. Each soil may have several different slopes, textures, aspects, or other phases. The survey includes 373 detailed soil map units.

The areas of irrigated cropland were mapped at a higher level of detail than were the areas of rangeland. The specifications and intensity of soil mapping used in the survey area are discussed in the section “Soil Survey Procedures.”

Further assistance for landowners or operators interested in planning the use and management of the resources in a particular area is provided by the local office of the Natural Resources Conservation Service. Technical guides maintained in the local office contain specific information for common conservation practices. The County Extension Service also provides soil-related information on crop management, crop varieties, fertilizers, pest control, and other agricultural concerns.

General Nature of the Survey Area

This section gives general information about the physiography, relief, and drainage; history and development; and climate of the survey area.

Physiography, Relief, and Drainage

Most of the survey area lies within the Basin and Range Physiographic Province. Harney Basin is the northernmost extent of this physiographic province. The northern part of the survey is in the Blue Mountains Province. The Malheur River drains into the Snake River from the Blue Mountains. The northwestern part of the survey area is in the High Lava Plains Province (Orr and Ewart, 1992). The uplands of the survey area are mostly Tertiary tuff, basalt, and andesite with a few islands of older igneous rock. The valleys consist of Quaternary alluvium. Steens Mountain is dominantly Miocene basalt flows, which were dramatically uplifted in a fault block. During the Pleistocene, Steens Mountain was sculpted by alpine glaciation.

The Basin and Range Province is characterized by basins that have closed or partially closed drainage systems and are separated by north-south trending fault-block mountain ranges. Harney Basin, Pueblo Valley, Alvord Desert, and Catlow Valley are the major basins in the survey area. In the lowest part of these basins are dry salt flats and shallow saline playa lakes. The soils on lakebeds and terraces adjacent to these lowest areas are those of the Alvodest, Boravall, Icene, and Mesman series. During the Ice Age, large lakes filled these basins. The shorelines from these lakes are as much as 200 feet above the present floor of the basins (Snyder and Zdenek, 1964). Many of the nearly level lake terraces in the basins are now being farmed. The soils on these ancient lake terraces include those of the Lawen, Outerkirk, Kegler, Reallis, Enko, and Windybutte series. The floor of the basins is at an elevation of about 4,000 to 4,500 feet. The mean annual precipitation in Harney Basin and Catlow Valley is 8 to 11 inches. The frost-free period is 50 to 100 days. The mean annual precipitation of the Alvord Desert and Pueblo Valley is 7 to 10 inches, and the frost-free period is 80 to 100 days. Catlow Rim, Steens Mountain, Pueblo Mountains, and Trout Creek Mountains are the major fault-block escarpments or ranges that separate the basins. Elevation of these ranges is about 5,000 to 9,700 feet. The mean annual precipitation is 10 to 50 inches, and the frost-free period is 30 to 80 days.

The moderately sloping plateaus to the west of Catlow Valley and Harney Basin are dotted by cinder cones and lava buttes. Common soils on the plateaus are those of the Ninemile, Raz, and Brace soils. Beatys Butte, Juniper Mountain, and Wagontire Mountain are the most prominent volcanic features. Common soils on these mountains are those of the Ninemile, Westbutte, Carryback, Pernty, Reluctan, Doyn, Edemaps, and Baconcamp series. Elevation of this volcanic area is about 5,000 to 7,900 feet. Over most of this area, the mean annual precipitation is 10 to 16 inches and the frost-free period is 50 to 80 days. At the highest elevations, the mean annual precipitation ranges to as much as 25 inches and the frost-free period ranges to as little as 30 days.

The Stinkingwater Mountains are steep to rolling hills at an elevation of 3,400 feet at Warm Springs Reservoir to 6,000 feet at Otis Mountain. These mountains drain into the Malheur River. The mean annual precipitation is 10 to 16 inches, and the frost-free period is 50 to 100 days.

The Blue Mountains are steep to rolling forested hills and mountains at an elevation of 5,000 to 5,800 feet. The mean annual precipitation is 18 to 25 inches, and the frost-free period is 50 to 80 days.

History and Development

General Information

The first white men recorded to visit Harney County were a splinter party from Peter Skene Ogden's Snake River exploratory trip in 1826 (Ferguson, 1978). This

six-man party, led by Antoine Sylvaille, was dispatched up the Malheur River into what is now Harvey County. In 1827 Jed S. Smith of the Missouri Fur Company passed through Harney Basin (Harney County Chamber of Commerce Centennial Committee, 1989).

The Oregon Trail migration mostly bypassed Harney County to the north. One famous exception was the 1845 Stephen Meek wagon train, dubbed the "Lost Wagon Train." Meek led a group of 200 wagons and 800 people that split off from a larger wagon train. He charged one dollar per wagon and led the party on a southerly route into present-day Harney County (Brimlow, 1951). When Meek had previously seen this area, Malheur Lake was very large and water was easily available. In 1845, however, he led the wagon train through the desert country during a drought (Wojcik, 1976). It was a disastrous trip. After reaching Harney Lake, they traveled the next 35 miles without water. The wagon train finally reached The Dallas, Oregon, weeks after the original train had arrived in the Willamette Valley. Seventy-five people died along the route. The mysterious "Blue Bucket" gold was discovered on this trek when some settlers unknowingly collected nuggets of gold. No one since has been able to locate the fabled source.

The U.S. Army moved into Harney County in 1859. Several forts were established to protect the settlers. The first permanent settler in the county was cattleman John Devine. In 1869 he established the Whitehorse Ranch on the east side of Steens Mountain, 26 years after the Oregon Trail migration began.

The settlers began to take over areas used by the Northern Paiute Indians for gathering roots and seeds; therefore, some of the Paiutes joined in the Bannock War of 1878. After the war, the Indians were restricted from the 2,285-square-mile Malheur Indian Reservation. The men were shackled and taken on foot to the Yakima Indian Reservation.

Large ranches flourished late in the 19th century. Several ranches, including the Peter French and Miller-Lux Ranches, consolidated their holdings.

Burns, the most populous community in Harney County, was named after a Scottish poet. It was incorporated in 1889.

In 1908 President Theodore Roosevelt established the Malheur National Wildlife Refuge in response to a public outcry over plume hunters shooting the waterfowl on Malheur Lake. Later acquisitions expanded the refuge to about 181,000 acres.

In 1928 the Forest Service asked Edward Hines to establish a lumber mill in Harney County. The world's largest sawmill under cover cut its first log in January 1930. At its peak, the Edward Hines Lumber Company employed thousands of workers. The sawmill was sold in 1983, and it was "parted out" in the 1990's. Other manufacturers now occupy the site.

Natural resource concerns of private land managers in the county led to the establishment of the Harney Soil and Water Conservation District in October 1972.

In the early 1980's, the high runoff from several years of high precipitation and deep snowpack on Steens Mountain caused Malheur Lake to inundate a vast area. Malheur and Harney Lakes coalesced and became the largest inland body of water in Oregon. Thirty ranches flooded, including some third generation ranches. Many roads also flooded, and the railroad ceased to operate. As a result of several years of drought beginning in the late 1980's, Malheur Lake shrank to just a few hundred acres by 1992.

History of the Northern Paiutes

By Minerva Soucie, Burns Paiute historian.

The Northern Paiutes were the dominant group of people in Harney County prior to the Europeans. The Paiutes were hunters and gatherers. The area provided many resources to sustain them during harsh winter months. They traveled great distances each year, from the first signs of onions pushing through the soil in spring until the

last chokecherry had been picked in fall. Their yearly cycles enabled them to harvest camas, biscuitroot, bitter root, and seeds from wildrye to wada, hence they were called “wada seed eaters.” Salmon were plentiful in the streams and rivers that drained into the mighty Snake River, which connected to the Columbia River and the Pacific Ocean. Mussels, crayfish, and trout, which could be mixed with the roots and bulbs, abounded in the fresh water. Elk, deer, groundhog, buffalo, and antelope meat was dried and stored for the cold winters.

The Paiutes gathered in seasonal cycles, traveling from Steens Mountain to the Blue Mountains, west to the Cascade Mountains, and east to the Payette Valley in Idaho. These travels not only allowed them to hunt and gather, but they also allowed them to trade for items that perhaps were in short supply back home. Fur trappers were the first white people the Paiutes encountered. Later came the military and then wagonloads of settlers.

In 1872 the Malheur Indian Reservation was created by executive order for all the “roving” Paiutes in southeast Oregon. The Paiutes settled on the reservation until the Bannock War in 1878. As a result of the skirmish with the U.S. Calvary, the entire Paiute Tribe was moved in the winter of 1879 to Fort Simcoe in Yakima, Washington. This move became known as the Paiute Trail of Tears. The women and children rode in military wagons, and the men were shackled and walked together. The Paiutes lived at Fort Simcoe for about 5 years.

After the Paiutes were moved, Malheur Indian Reservation was opened up to Public Domain. Settlers moved onto the prime camas fields and constructed fences. In 1895 the Allotment Act provided land to 115 adult members of Paiute households who had returned from Fort Simcoe. The land allotted to the Paiutes was alkaline, and because they were not familiar with farming, they could not sustain a living. They had learned carpentry skills, however, so they constructed many one-room houses. Some lived in these houses until they were moved in the 1920’s to “Old Camp,” which was a 10-acre tract of land donated to the Paiute people. In 1936 many of the people moved to this “new village” site. People who were knowledgeable in growing hay and alfalfa farmed the 300 acres of land adjacent to the homesites. In 1972 Congress created the present Burns Paiute Reservation. Today, the tribe continues to grow alfalfa that is sold to dairies in western Oregon.

Climate

Prepared by the Natural Resources Conservation Service, National Water and Climate Center, Portland, Oregon.

Data for the climate tables were recorded at Denio Junction, Nevada, and at P Ranch Refuge and Northern Great Basin Range Experiment Station, Oregon. Thunderstorm days, relative humidity, percent sunshine, and wind information were estimated from data recorded at the First Order station at Winnemucca, Nevada.

Table 1 gives data on temperature and precipitation for the survey area in the period 1961 to 1990. Table 2 shows probable dates of the first freeze in fall and the last freeze in spring. Table 3 provides data on the length of the growing season.

In winter, the average temperature is 32.7 degrees F at Denio Junction and P Ranch Refuge and 29.1 degrees at Northern Great Basin Range Experiment Station. The average daily minimum temperature is 21.5 degrees at Denio Junction, 21.7 degrees at P Ranch Refuge, and 20.2 degrees at Northern Great Basin Range Experiment Station. The lowest temperatures on record are -25 degrees at Denio Junction on February 4, 1985; -32 degrees at P Ranch Refuge on January 22, 1962; and -24 degrees at Northern Great Basin Range Experiment Station on January 31, 1950.

In summer, the average temperature is 68.7 degrees at Denio Junction, 63.8 degrees at P Ranch Refuge, and 63.9 degrees at Northern Great Basin Range

Experiment Station. The average daily maximum temperature is 87.8 degrees at Denio Junction, 82.5 degrees at P Ranch Refuge, and 79.9 degrees at Northern Great Basin Range Experiment Station. The highest temperatures on record are 107 degrees at Denio Junction on August 8, 1981; 103 degrees at P Ranch Refuge on August 3, 1961; and 104 degrees at Northern Great Basin Range Experiment Station on August 4, 1961.

Growing degree days are shown in table 1. They are equivalent to "heat units." During the month, growing degree days accumulate by the amount that the average temperature each day exceeds a base temperature (40 degrees F). The normal monthly accumulation is used to schedule single or successive plantings of a crop between the last freeze in spring and the first freeze in fall.

The average annual precipitation is 9.10 inches at Denio Junction, 11.90 inches at P Ranch Refuge, and 10.56 inches at Northern Great Basin Range Experiment Station. The average annual precipitation of the survey area generally is 9 to 13 inches, with the exception of the Steens Mountain area. The highest elevations in this area, which are above 7,000 feet, receive 40 to 50 inches of precipitation annually. The upper part of the Trout Creek drainageway, in the southeastern portion of the survey area, receives as much as 24 inches of precipitation annually. The growing season for most of the survey area is quite short, generally only June through September. Normally, only about 2 to 3 inches of precipitation falls during this period, which is less than 25 percent of the total annual precipitation.

The heaviest amount of precipitation received in 1 day during the period of record was 2.00 inches at Denio Junction on November 7, 1973; 1.97 inches at P Ranch Refuge on June 16, 1987; and 2.23 inches at Northern Great Basin Range Experiment Station on August 23, 1941. Thunderstorms generally occur on about 15 days each year, but the frequency is slightly higher at the higher elevations. Most thunderstorms occur in June through August.

The average seasonal snowfall is 22.5 inches at Denio Junction, 15.9 inches at P Ranch Refuge, and 39.7 inches at Northern Great Basin Range Experiment Station. The greatest snow depth at any one time during the period of record was 12 inches at Denio Junction on January 7, 1993; 10 inches at P Ranch Refuge on December 28, 1983; and 29 inches at Northern Great Basin Range Experiment Station on March 4, 1993. Snow measurements and other data were not available from Denio Junction and Northern Great Basin Range Experiment Station during the period of heavy snow in February and March 1993; the snow depth during this time may have been greater than the previously reported extremes. On an average, 12 days per year at Denio Junction, 10 days at P Ranch Refuge, and 48 days at Northern Great Basin Range Experiment Station have at least 1 inch of snow on the ground. The Steens Mountain area has a snow cover for much of the year; the higher elevations generally are covered with snow from late in October through June or July. At the Fish Creek SNOTEL site on Steens Mountain at an elevation of 7,900 feet, the average date of the total meltoff is July 10 and the snow cover is at its maximum depth in mid-April, when about 30 inches of water is in the snowpack. The heaviest 1-day snowfall on record was 10 inches at Denio Junction on November 26, 1979; 9 inches at P Ranch Refuge on November 21, 1977; and 13 inches at Northern Great Basin Range Experiment Station on January 17, 1951.

The average relative humidity in midafternoon generally is about 35 percent. Humidity is higher at night, and the average at dawn is usually about 70 percent. There are significant differences in humidity between winter and summer. The lowest midafternoon humidity generally is about 70 percent in winter, but it is only about 15 percent in summer. The sun shines 82 percent of the time possible in summer and 48 percent of the time possible in winter. The prevailing wind generally is from the west, but the direction of the wind is closely related to the local topography. Average

windspeed is highest, 8 to 9 miles per hour, at the lower elevations in spring. Windspeed generally increases with elevation throughout the year.

How This Survey Was Made

This survey was made to provide information about the soils and miscellaneous areas in the survey area. The information includes a description of the soils and miscellaneous areas and their location and a discussion of their suitability, limitations, and management for specified uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They dug many holes to study the soil profile, which is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

The soils and miscellaneous areas in the survey area are in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept or model of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are

assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Survey Procedures

The guidelines followed in making this survey are described in the National Soil Survey Handbook (http://soils.usda.gov/technical/handbook/). References used in the development of this survey include geologic maps published by the U.S. Geological Survey (Greene and others, 1972; Greene, 1972; Walker, 1979; Walker and Repenning, 1965).

The survey area was mapped on orthophotography quadrangles at a scale of 1:24,000. The photo imagery used in mapping was dated 1974. The imagery used in the map compilation was dated 1975 to 1977. The imagery used for the soil maps in the publication was dated 1988, 1989, 1994, and 2001, but a high percentage was dated 1994. Imagery dated 1975 was used in placing map unit lines. Because the boundary between water and soil can fluctuate dramatically as a result of differences in the amount of runoff, using imagery from a different year will affect the placement of a map unit line between water and soil. If the digital map unit lines as based on the 1975 to 1977 imagery are superimposed over imagery from a different year, the lines between soil and water may not coincide.

The Bureau of Land Management had lead responsibility for mapping all land in the survey area that is managed by the Bureau. The Natural Resources Conservation Service had lead responsibility for mapping all other land in the survey area. In some areas, access was denied by landowners. These areas are included in detailed soil map unit 373.

Slopes on the hills and mountains were determined by use of contour intervals on topographic maps and by stereoscopic study. Transects were used to map soils in level areas that did not have easily predictable patterns, such as those on flood plains. Tonal patterns on aerial photographs were used to predict some preliminary map unit delineations, although the extent and composition of each map unit was determined by the use of line-intercept transects. The transect lines and field samples were taken at regular intervals, commonly crossing several map unit delineations on a single geomorphic surface. Where predictable soil patterns exist, such as on terraces and plateaus, landform traverses were used to correlate soils with a particular geomorphic surface. Preliminary map unit delineations were drawn using soil-landform models. Field sampling was used to support the particular soil-landform model established for each area. Traverses were planned by using topographic maps and photo-interpretation of tonal patterns, slope, and aspect. The traverses crossed typical geomorphic surfaces and varying slopes in the area. Potential plant communities were correlated with specific soil characteristics. Some soil features that influence potential plant communities include a clayey subsoil, drainage, and salt content. A soil-potential plant community model was used to support the soil-landform model. Tonal patterns on aerial photographs were used to predict the presence of wet, droughty, or shallow soils, patterns of cobbles or stones, eroded areas, saline

soils, and soils that have a duripan. Aspect contrasts also are evident on aerial photographs. The type and density of vegetation commonly reflect the depth and available water capacity of soils.

This survey was mapped at two levels of detail. Order 2 mapping was used for the more intensively managed irrigated areas, and Order 3 mapping was used for the less intensively managed areas of rangeland and forestland. The minimum size of the delineations was divided into three categories—similar soils, contrasting soils, and strongly contrasting soils. Similar soils have the same potential plant communities as the dominant soil or soils in the map unit, are suited to similar management practices, and can be identified only by use of soil sampling and landform traverses. Contrasting soils have different potential plant communities, are suited to different management practices, and can be identified only by use of landform traverses or soil sampling. Strongly contrasting soils have different potential plant communities and are suited to different management practices. They were identified by use of remote sensing techniques. These techniques include determining slope and aspect from topographic maps and photo-interpretation of tonal patterns.

The irrigated cropland and potential irrigable areas were mapped at Order 2 intensity. The map units are consociations and complexes of phases of soil series or miscellaneous areas. The minimum size of the delineations for similar soils is about 80 acres. The minimum size of the delineations for contrasting soils is about 40 acres, and that for strongly contrasting soils is about 10 acres. Photo-interpretation and field investigations were conducted at an intensity that could detect 10-acre areas that need significantly different management for irrigated hay, pasture, or cropland.

The areas of rangeland and forestland were mapped at Order 3 intensity. The map units are mainly associations and complexes of phases of soil series and miscellaneous areas. Consociations of phases of soil series were mapped in some areas. The minimum size of the delineations for similar soils is about 320 acres, and that of contrasting soils is about 160 acres. Smaller delineations of about 40 acres were mapped in areas of strongly contrasting soils that have high resource value. Photo-interpretation and field investigations were conducted at an intensity that could detect 40-acre areas that need significantly different management for rangeland, forestland, wildlife habitat, recreation, and watershed.

In areas of rangeland and forestland, only about one-fourth of the number of landform traverses were made as compared to the areas of cropland. Transects were made to correlate plant associations for forestland and ecological sites for rangeland to soil patterns and composition. The density of trees was used to identify highly productive soils in the areas of forestland. For the areas of rangeland and forestland, similar soils are major components of the map unit. Many of these soils are in relatively small, isolated areas of the survey area. The characteristics of these soils and in some cases the location of the soils are given in the section “Detailed Soil Map Units.”

Soil samples for chemical and physical analysis were taken for some of the typical pedons of the major soils in the survey area. The analyses were made by the National Soil Survey Laboratory in Lincoln, Nebraska, and by the laboratory at Oregon State University. The results of the analyses were used in classifying the soils, establishing soil properties, and making interpretations.

General Soil Map Units

The general soil map in this publication shows broad areas that have a distinctive pattern of soils, relief, and drainage. The 13 general soil map units in this survey have been grouped into six broader groups based on landform, climate, and vegetation. Each map unit on the general soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. The components of one map unit can occur in another but in a different pattern.

The general soil map can be used to compare the suitability of large areas for general land uses. Areas of suitable soils can be identified on the map. Likewise, areas where the soils are not suitable can be identified.

Because of its small scale, the map is not suitable for planning the management of a farm or field or for selecting a site for a road or building or other structure. The soils in any one map unit differ from place to place in slope, depth, drainage, and other characteristics that affect management.

Warm Soils on Lake Plains, Lake Terraces, and Low Hills

Number of map units: 3
Percentage of survey area: 18 percent

1. Alvodest-Droval-Playas

Somewhat poorly drained, very deep soils that formed in lacustrine sediment; on lake plains

Percentage of survey area: 5 percent
Elevation: 4,000 to 4,600 feet
Average annual precipitation: 7 to 10 inches
Average annual temperature: 45 to 49 degrees F
Frost-free period: 80 to 100 days
Slope: 0 to 3 percent
Dominant vegetation: Black greasewood, inland saltgrass, basin wildrye
Minor components: Ozamis, Icene, Mesman, Boravall, and Dixon soils
Major uses: Livestock grazing, wetland wildlife habitat
Major soil limitations: Wetness, alkalinity, salinity

2. Spangenburg-Enko-Catlow

Well drained and moderately well drained, very deep soils that formed in alluvium and lacustrine sediment; on low lake terraces

Percentage of survey area: 8 percent
Elevation: 4,200 to 5,500 feet
Average annual precipitation: 8 to 10 inches

Average annual temperature: 45 to 49 degrees F
Frost-free period: 80 to 100 days
Slope: 0 to 20 percent
Dominant vegetation: Basin big sagebrush, Wyoming big sagebrush, beardless wildrye, bluebunch wheatgrass, Thurber needlegrass, basin wildrye, Indian ricegrass, needleandthread
Minor components: Outerkirk, Norad, Goldrun, Defenbaugh, Rio King, and Nevador soils
Major uses: Livestock grazing, irrigated alfalfa production
Major soil limitation: Hazard of wind erosion

3. Atlow-Tumtum-Deppy

Well drained, shallow soils that formed in old alluvium, residuum, and colluvium; on high lake terraces and low hills

Percentage of survey area: 5 percent
Elevation: 3,400 to 5,300 feet
Average annual precipitation: 7 to 10 inches
Average annual temperature: 45 to 49 degrees F
Frost-free period: 80 to 100 days
Slope: 2 to 50 percent
Dominant vegetation: Shadscale, bud sagebrush, Wyoming big sagebrush, bluebunch wheatgrass, Indian ricegrass, Thurber needlegrass
Minor components: Kerrfield, Bruncan, Vining, and Ladycomb soils
Major use: Livestock grazing
Major soil limitations: Hazard of water erosion, soil depth, low available water capacity

Warm Soils on Hills, Plateaus, and Mountains

Number of map units: 2
Percentage of survey area: 6 percent

4. Gumble-Risley-Mahoon

Well drained, shallow and moderately deep soils that formed in residuum and colluvium; on hills and plateaus

Percentage of survey area: 4 percent
Elevation: 3,400 to 4,800 feet
Average annual precipitation: 9 to 12 inches
Average annual temperature: 45 to 49 degrees F
Frost-free period: 80 to 100 days
Slope: 2 to 40 percent
Dominant vegetation: Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass, Sandberg bluegrass
Minor components: Porterfield soils, Torriorthents, Cagle soils
Major use: Livestock grazing
Major soil limitations: Hazard of water erosion, soil depth, low available water capacity

5. Felcher-Skedaddle

Well drained, very shallow to moderately deep soils that formed in colluvium and residuum; on mountains and hills

Percentage of survey area: 2 percent
Elevation: 4,100 to 7,100 feet
Average annual precipitation: 8 to 12 inches
Average annual temperature: 45 to 49 degrees F
Frost-free period: 80 to 100 days
Slope: 20 to 70 percent
Dominant vegetation: Wyoming big sagebrush, shadscale, bud sagebrush, Indian ricegrass, bluebunch wheatgrass, Thurber needlegrass, desert needlegrass
Minor components: Westbutte and Fitzwater soils
Major use: Livestock grazing
Major soil limitations: Hazard of water erosion, soil depth, steepness of slope, low available water capacity

Cool Soils on Lake Terraces, Lake Plains, and Fans

Number of map units: 3
Percentage of survey area: 10 percent

6. Fury-Skunkfarm-Housefield

Somewhat poorly drained to very poorly drained, very deep soils that formed in lacustrine sediment; on lake plains

Percentage of survey area: 3 percent
Elevation: 4,000 to 5,100 feet
Average annual precipitation: 8 to 10 inches
Average annual temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days
Slope: 0 to 2 percent
Dominant vegetation: Nebraska sedge, Baltic rush, beardless wildrye, hardstem bulrush, broadfruit burreed, spikerush, basin wildrye
Minor components: Widowspring, Skidoosprings, Degarmo, Opie, and Mcbain soils; Cumulic Haploxerolls; Jimgreen soils
Major uses: Livestock grazing, native hay production, wetland wildlife habitat
Major soil limitation: Wetness

7. Poujade-Ausmus-Swalesilver

Moderately well drained and somewhat poorly drained, very deep soils that formed in lacustrine sediment and alluvium; on lake terraces and lake plains

Percentage of survey area: 4 percent
Elevation: 4,000 to 4,500 feet
Average annual precipitation: 8 to 10 inches
Average annual temperature: 43 to 45 degrees F

Frost-free period: 50 to 80 days
Slope: 0 to 5 percent
Dominant vegetation: Basin big sagebrush, black greasewood, silver sagebrush, basin wildrye, inland saltgrass, beardless wildrye, Sandberg bluegrass
Minor components: Skidoosprings, Crowcamp, Thenarrows, Fury, Duckclub, and Lolak soils; Playas; Opie soils
Major uses: Livestock grazing, irrigated alfalfa production, wetland wildlife habitat
Major soil limitations: Wetness, alkalinity, salinity

8. Reallis-Vergas-Lawen

Well drained, very deep soils that formed in alluvium; on lake terraces and fans

Percentage of survey area: 3 percent
Elevation: 4,000 to 6,000 feet
Average annual precipitation: 8 to 12 inches
Average annual temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days
Slope: 0 to 8 percent
Dominant vegetation: Basin big sagebrush, Wyoming big sagebrush, Thurber needlegrass, needleandthread
Minor components: Carvix, Widowspring, Voltage, Swaler, Swalesilver, and Sandgap soils
Major uses: Livestock grazing, irrigated alfalfa production
Major soil limitation: Hazard of wind erosion

Cold Soils on Mountains

Number of map units: 1
Percentage of survey area: 5 percent

9. Baconcamp-Clamp-Rock outcrop

Well drained, shallow and moderately deep soils that formed in colluvium; on mountains

Percentage of survey area: 5 percent (fig. 1)
Elevation: 5,100 to 9,700 feet
Average annual precipitation: 12 to 40 inches
Average annual temperature: 40 to 43 degrees F
Frost-free period: 30 to 50 days
Slope: 5 to 80 percent
Dominant vegetation: Mountain big sagebrush, antelope bitterbrush, Idaho fescue, rough fescue, tufted hairgrass, sheep fescue
Minor components: Hackwood, Duff, Krackle, Hapgood, Leemorris, Gilispie, Buckwilder, and Dickle soils
Major uses: Livestock grazing, wildlife habitat, recreation
Major soil limitations: Steepness of slope, hazard of water erosion, short growing season, soil depth



Figure 1.—Area of general soil map unit 9. Big Indian Gorge on Steens Mountain in background.

Cool Soils on Shrub- and Grass-Covered Plateaus, Hills, and Mountains that Receive 8 to 16 Inches of Precipitation

Number of map units: 2
Percentage of survey area: 50 percent

10. Raz-Brace-Anawalt

Well drained, shallow and moderately deep soils that formed in alluvium and colluvium; on plateaus and hills that receive 8 to 12 inches of precipitation

Percentage of survey area: 35 percent
Elevation: 4,100 to 6,200 feet
Average annual precipitation: 8 to 12 inches
Average annual temperature: 43 to 45 degrees F
Frost-free period: 50 to 80 days
Slope: 0 to 30 percent
Dominant vegetation: Wyoming big sagebrush, low sagebrush, Thurber needlegrass, bluebunch wheatgrass, Indian ricegrass, needleandthread, Sandberg needlegrass
Minor components: Actem, Robson, Carryback, and Lonely soils
Major use: Livestock grazing
Major soil limitations: Soil depth, low available water capacity, hazard of water erosion

11. Ninemile-Westbutte-Carryback

Well drained, shallow and moderately deep soils that formed in residuum and colluvium; on plateaus, hills, and mountains that receive 12 to 16 inches of precipitation

Percentage of survey area: 15 percent
Elevation: 4,000 to 7,000 feet
Average annual precipitation: 12 to 16 inches
Average annual temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days
Slope: 0 to 65 percent
Dominant vegetation: Western juniper, low sagebrush, mountain big sagebrush, Idaho fescue
Minor components: Pernty, Reluctan, Lambring, Doyn, Teguro, Ateron, and Edemaps soils
Major use: Livestock grazing
Major soil limitations: Steepness of slope, hazard of water erosion, soil depth

Cool Soils on Forested and Shrub- and Grass-Covered Hills and Mountains that Receive 12 to 18 Inches of Precipitation

Number of map units: 2
Percentage of survey area: 11 percent

12. Merlin-Observation-Lambring

Well drained, shallow, moderately deep, and very deep soils that formed in residuum and colluvium; on shrub- and grass-covered hills and mountains

Percentage of survey area: 10 percent
Elevation: 4,900 to 6,600 feet
Average annual precipitation: 12 to 16 inches
Average annual temperature: 40 to 45 degrees F
Frost-free period: 50 to 80 days
Slope: 0 to 70 percent
Dominant vegetation: Western juniper, curl-leaf mountain mahogany, low sagebrush, mountain big sagebrush, antelope bitterbrush, Idaho fescue, onespike oatgrass, basin wildrye
Minor components: Doyn, Teguro, and Vitale soils
Major use: Livestock grazing
Major soil limitations: Steepness of slope, hazard of water erosion, soil depth

13. Gaib-Anatone-Royst

Well drained, shallow and moderately deep soils that formed in residuum and colluvium; on forested hills and mountains

Percentage of survey area: 1 percent
Elevation: 4,000 to 6,000 feet
Average annual precipitation: 16 to 18 inches
Average annual temperature: 40 to 43 degrees F
Frost-free period: 50 to 80 days

Slope: 2 to 60 percent
Dominant vegetation: Ponderosa pine, western juniper, curl-leaf mountain mahogany, low sagebrush, mountain big sagebrush, antelope bitterbrush, Idaho fescue, onespike oatgrass, Douglas fir
Minor components: Observation, Egyptcreek, Klicker, Mound, Lambring, Merlin, and Teguro soils
Major uses: Livestock grazing, forestland
Major soil limitations: Steepness of slope, surface rock fragments, hazard of water erosion, soil depth

Detailed Soil Map Units

The map units delineated on the detailed soil maps in this survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this section, along with the maps, can be used to determine the suitability and potential of a unit for specific uses. They also can be used to plan the management needed for those uses.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, soils. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. The contrasting components are mentioned in the map unit descriptions. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives the principal hazards and limitations to be considered in planning for specific uses.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase

commonly indicates a feature that affects use or management. For example, Ninemile very stony clay loam, 0 to 20 percent slopes, is a phase of the Ninemile series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes or associations.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Raz-Brace complex, 2 to 20 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Westbutte-Observation association, 5 to 40 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

1—Actem cobbly loam, 2 to 20 percent slopes

Composition

Actem and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Old alluvium and colluvium
Geology: Basalt and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light gray cobbly loam
2 to 7 inches—brown clay
7 to 15 inches—light yellowish brown clay loam
15 to 20 inches—very pale brown indurated duripan
20 inches—basalt

Soil Properties and Qualities

Depth: 2 to 10 inches to a claypan, 12 to 20 inches to a hardpan, and 20 to 30 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Wagontire soils on fan terraces
- Gradon soils on fan terraces
- Playas

Major Soil Limitations

Depth to bedrock, depth to a claypan, depth to a hardpan, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

2—Actem extremely cobbly loam, low precipitation, 2 to 15 percent slopes

Composition

Actem and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Old alluvium and colluvium
Geology: Basalt and welded tuff
Elevation: 4,800 to 5,200 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light gray extremely cobbly loam
2 to 7 inches—brown clay

7 to 15 inches—light yellowish brown clay loam
15 to 20 inches—very pale brown indurated duripan
20 inches—basalt

Soil Properties and Qualities

Depth: 2 to 10 inches to a claypan, 12 to 20 inches to a hardpan, and 20 to 30 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carvix soils in drainageways and on stream terraces
- Rock outcrop

Major Soil Limitations

Surface rock fragments, depth to bedrock, depth to a claypan, depth to a hardpan, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The extremely cobbly surface layer prohibits the operation of ground seeding equipment.
- The extremely cobbly soil surface limits livestock movement and the distribution of grazing.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the surface rock fragments.

3—Actem-Robson complex, 2 to 20 percent slopes

Composition

Actem and similar soils—45 percent
Robson and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt and welded tuff

Elevation: 4,900 to 5,400 feet
Rangeland ecological site and characteristic vegetation: Actem and Robson—(Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Actem

0 to 2 inches—light gray cobbly loam
2 to 7 inches—brown clay
7 to 15 inches—light yellowish brown clay loam
15 to 20 inches—very pale brown indurated duripan
20 inches—basalt

Properties and Qualities of Actem

Depth: 2 to 10 inches to a claypan, 12 to 20 inches to a hardpan, and 20 to 30 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Robson

0 to 4 inches—light brownish gray very stony loam
4 to 13 inches—brown very gravelly clay
13 inches—basalt

Properties and Qualities of Robson

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Anawalt soils in drainageways
- Swaler soils in basins and drainageways
- Rock outcrop

Major Soil Limitations

Actem and Robson—depth to bedrock, shrink-swell potential
Actem—depth to a claypan
Robson—available water capacity, surface stones

Use and Management

Livestock Grazing

Actem and Robson
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- The upper part of the soils is saturated following snowmelt.

- These soils are susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.

Actem
- The claypan restricts the rooting depth.
- The suitability for seeding is poor because of the low available water capacity.

Robson
- The low available water capacity of the surface layer limits seedling survival.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The suitability for seeding is very poor because of the low available water capacity.

4—Alvodest silty clay loam, 0 to 3 percent slopes

Composition

Alvodest and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Sodic Flat) black greasewood, inland saltgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—light gray silty clay loam
2 to 6 inches—light brownish gray silty clay loam
6 to 42 inches—grayish brown silty clay
42 to 53 inches—light brownish gray silty clay
53 to 78 inches—light gray silty clay

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in winter and spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High

Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Alvodest soils that have a sandy surface layer
- Defenbaugh and Outerkirk soils on alluvial fans

Major Soil Limitations

Available water capacity, wetness, shrink-swell potential, salinity, alkalinity, corrosivity, wind erosion

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, black greasewood, alkali sacaton, and seepweed increase and inland saltgrass and basin wildrye decrease.
- The suitability for seeding is very poor because of the low available water capacity, strong salinity, and strong alkalinity.

5—Alvodest-Playas complex, 0 to 2 percent slopes

Composition

Alvodest and similar soils—50 percent
Playas—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Alvodest—plane; Playas—plane and concave
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Alvodest—(Sodic Flat) black greasewood, inland saltgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Alvodest

0 to 2 inches—light gray silty clay loam
2 to 6 inches—light brownish gray silty clay loam
6 to 42 inches—grayish brown silty clay
42 to 53 inches—light brownish gray silty clay
53 to 78 inches—light gray silty clay

Properties and Qualities of Alvodest

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in winter and spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Playas

0 to 60 inches—stratified loamy, silty, and clayey lacustrine sediment

Properties and Qualities of Playas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: May be present throughout the year
Water table: Present throughout the year
Permeability: Very slow
Hazard of erosion: Water—slight; wind—slight to severe
Shrink-swell potential: High
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Davey soils on lake terraces
- Outerkirk soils on alluvial fans

Major Limitations

Alvodest and Playas—available water capacity, wind erosion, shrink-swell potential, salinity, alkalinity, wetness, corrosivity

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, black greasewood, alkali sacaton, and seepweed increase and inland saltgrass and basin wildrye decrease.
- The suitability for seeding is very poor because of the low available water capacity, strong salinity, and strong alkalinity.

6—Alyan gravelly sandy loam, 3 to 15 percent slopes

Composition

Alyan and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Welded tuff, rhyolite, and ashflow tuff
Elevation: 4,200 to 5,200 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—11 to 13 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—brown gravelly sandy loam
2 to 10 inches—brown loam
10 to 17 inches—pale brown cobbly clay loam
17 to 24 inches—light yellowish brown cobbly clay
24 inches—fractured ashflow tuff

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Shrink-swell potential: High

Contrasting Inclusions

- Riddleranch soils on mountains
- Carvix soils on stream terraces
- Ninemile soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Depth to bedrock, wind erosion, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the low available water capacity.

7—Anatone very stony loam, 2 to 12 percent slopes

Composition

Anatone and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 5 inches—grayish brown very stony loam
5 to 16 inches—brown very gravelly loam
16 inches—fractured welded tuff

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Observation and Teguro soils on hills
- Westbutte soils on north-facing hillsides
- Rock outcrop

Major Soil Limitations

Surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

8—Anatone complex, 2 to 30 percent slopes

Composition

Anatone, moist, and similar soils—50 percent
Anatone and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Welded tuff
Elevation: 4,600 to 5,500 feet
Rangeland ecological site and characteristic vegetation: Anatone, moist—(SR Dry Pine 14-16PZ) ponderosa pine, western juniper, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Anatone—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anatone, Moist

0 to 5 inches—grayish brown very gravelly loam
5 to 16 inches—brown very gravelly loam
16 inches—fractured welded tuff

Typical Profile of Anatone

0 to 8 inches—grayish brown stony loam

8 to 14 inches—brown very gravelly loam
14 inches—fractured welded tuff

Properties and Qualities of Anatone, Moist, and Anatone

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Erakatak soils on north-facing hillsides
- Merlin and Observation soils on hills and ridges
- Doyn, Gaib, and Teguro soils on hills
- Rock outcrop and Rubble land

Major Soil Limitations

Anatone, moist, and Anatone—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Anatone, moist, and Anatone
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The low available water capacity of the surface layer limits seedling survival.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.

Forest Products

Anatone, moist
- Roads and landings are very difficult to construct because of the depth to bedrock.
- The shallow depth to bedrock prevents deep mechanical site preparation.
- Mechanical planting and hand planting are restricted by the surface rock fragments.
- The seedling mortality rate is high because of the low available water capacity.
- The risk of windthrow is high because of the shallow depth to bedrock.

9—Anatone-Teguro-Observation complex, 2 to 20 percent slopes

Composition

Anatone and similar soils—45 percent
Teguro and similar soils—25 percent
Observation and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus

Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Welded tuff, andesite, and basalt
Elevation: 4,700 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Anatone—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass; Teguro—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass; Observation—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anatone

0 to 5 inches—grayish brown very gravelly loam
5 to 16 inches—brown very gravelly loam
16 inches—fractured welded tuff

Properties and Qualities of Anatone

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Teguro

0 to 2 inches—grayish brown gravelly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Observation

0 to 4 inches—dark grayish brown very gravelly loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn and Ticino soils on hills and plateaus
- Westbutte soils on north-facing hillsides
- Rock outcrop

Major Soil Limitations

Anatone, Teguro, and Observation—depth to bedrock
Anatone and Teguro—available water capacity
Observation—shrink-swell potential

Use and Management

Livestock Grazing

Anatone and Teguro
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The suitability for seeding is poor because of the low available water capacity.

Anatone
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

Teguro
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.

Observation
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is good.

10—Anatone-Egyptcreek-Rock outcrop association, 20 to 50 percent slopes

Composition

Anatone, moist, and similar soils—45 percent
Egyptcreek and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Anatone, moist—south- and west-facing slopes; Egyptcreek—north- and east-facing slopes
Parent material: Colluvium and residuum
Geology: Welded tuff
Elevation: 4,400 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Anatone, moist—(SR Dry Pine 14-16PZ) ponderosa pine, western juniper, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Forestland plant association and characteristic vegetation: Egyptcreek—(ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass) ponderosa pine, antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 18 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anatone, Moist

0 to 8 inches—grayish brown extremely gravelly loam
8 to 14 inches—brown very gravelly loam
14 inches—fractured welded tuff

Properties and Qualities of Anatone, Moist

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Egyptcreek

1 inch to 0—slightly decomposed needles and twigs
0 to 8 inches—grayish brown very gravelly loam
8 to 18 inches—yellowish brown very gravelly loam
18 to 24 inches—yellowish brown extremely cobbly loam
24 inches—fractured welded tuff

Properties and Qualities of Egyptcreek

Depth: 20 to 36 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Gaib, Mound, and Vitale soils on hills

Major Soil Limitations

Anatone, moist, and Egyptcreek—available water capacity, water erosion, slope, depth to bedrock

Use and Management

Livestock Grazing

Anatone, moist, and Egyptcreek
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock and slope limit the construction of water impoundments.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

Anatone, moist
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The suitability for seeding is very poor because of the low available water capacity and steepness of slope.

Egyptcreek
- The suitability for seeding is very poor because of the steepness of slope.

Forest Products

Anatone, moist, and Egyptcreek
- Roads and landings are very difficult to construct because of the depth to bedrock and steepness of slope.
- The steepness of slope limits the use of wheeled and tracked equipment.
- This unit is not suited to mechanical planting and site preparation because of the steepness of slope.
- Hand planting is difficult because of the steepness of slope.
- The seedling mortality rate is high because of the low available water capacity.
- The risk of windthrow is high on the Anatone, moist, soil because of the shallow depth to bedrock.

11—Anatone-Minam-Rock outcrop association, 2 to 50 percent slopes

Composition

Anatone, moist, and similar soils—50 percent
Minam and similar soils—20 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Anatone, moist—sides slopes of 12 to 50 percent; Minam—drainageways with slopes of 2 to 12 percent
Parent material: Anatone, moist—colluvium and residuum; Minam—alluvium
Geology: Anatone, moist—welded tuff; Minam—mixed igneous rock; Rock outcrop—igneous rock
Elevation: 4,600 to 5,300 feet
Rangeland ecological site and characteristic vegetation: Anatone, moist—(SR Dry Pine 14-16PZ) ponderosa pine, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Minam—(SR Dry Mountain Swale 12-16PZ) mountain big sagebrush, Idaho fescue, sedge

Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anatone, Moist

0 to 5 inches—grayish brown extremely gravelly loam
5 to 16 inches—brown very gravelly loam
16 inches—fractured welded tuff

Properties and Qualities of Anatone, Moist

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Minam

0 to 29 inches—dark grayish brown gravelly silt loam
29 to 39 inches—brown loam
39 to 52 inches—yellowish brown gravelly sandy clay loam
52 to 62 inches—yellowish brown gravelly sandy loam

Properties and Qualities of Minam

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 8 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Westbutte, Merlin, Doyn, and Teguro soils on hills
- Welch soils in concave areas along drainageways
- Cumulic Haploxerolls adjacent to streams

Major Soil Limitations

Anatone, moist—available water capacity, depth to bedrock, water erosion, surface rock fragments
Minam—none

Use and Management

Livestock Grazing

Anatone, moist
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments .

Minam
- As the site deteriorates, big sagebrush, sedges, bluegrasses, and bottlebrush squirrel increase and Idaho fescue decreases.
- As the streambanks become unstable, the channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production potential.
- The suitability for seeding is good.

Forest Products

Anatone, moist
- Significant soil erosion is likely to occur. Special harvesting techniques and alternative site preparation and timing should be used to reduce the risk of erosion.
- Ruts are likely to occur. Seasonal restriction of travel should be considered or additional rock should be placed in the road subgrade and surface grade.
- The steepness of slope makes construction of landings and roads unsafe.
- Roads and landings are very difficult to construct because of the shallow depth to bedrock and steepness of slope.
- Operating wheeled or tracked equipment efficiently is limited by the steepness of slope.
- Surface mechanical site preparation is restricted by the surface rock fragments.
- The shallow depth to bedrock and steepness of slope prevent the use of deep mechanical site preparation.
- Planting by hand is difficult because of the surface rock fragments.
- Mechanical planting is restricted by the steepness of slope.
- The seedling mortality rate is high because of the low available water capacity.
- The risk of windthrow is high because of the shallow depth to bedrock.
- Because of the surface rock fragments, fires of moderate fireline intensity may damage the soil. Consider alternative techniques if prescribed burning is used.

12—Anatone-Teguro-Rock outcrop association, 2 to 40 percent slopes

Composition

Anatone and similar soils—35 percent
Teguro and similar soils—30 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Anatone—south- and west-facing side slopes of 20 to 40 percent; Teguro—side slopes of 2 to 20 percent
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Anatone—(SR Mountain Shallow South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass, Thurber needlegrass; Teguro—(SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anatone

0 to 5 inches—grayish brown very stony loam
5 to 16 inches—brown very gravelly loam
16 inches—fractured welded tuff

Properties and Qualities of Anatone

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Teguro

0 to 2 inches—grayish brown very gravelly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Egyptcreek, Lambring, and Westbutte soils on hills

Major Soil Limitations

Anatone and Teguro—available water capacity, depth to bedrock
Anatone—slope, surface stones

Use and Management

Livestock Grazing

Anatone and Teguro
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

Anatone
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Teguro
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.

- The suitability for seeding is poor because of the low available water capacity.

13—Anatone-Westbutte-Rock outcrop association, 20 to 60 percent slopes

Composition

Anatone and similar soils—40 percent
Westbutte and similar soils—35 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Anatone—south- and west-facing side slopes; Westbutte—north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Anatone and Westbutte—basalt, andesite, rhyolite, and welded tuff; Rock outcrop—igneous rock
Elevation: 4,100 to 5,800 feet
Rangeland ecological site and characteristic vegetation: Anatone—(SR Mountain Shallow South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass, Thurber needlegrass; Westbutte—(SR Mountain North 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anatone

0 to 5 inches—grayish brown extremely gravelly loam
5 to 16 inches—brown very gravelly loam
16 inches—fractured welded tuff

Properties and Qualities of Anatone

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very cobbly loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Merlin, Riddleranch, and Teguro soils on hills

Major Soil Limitations

Anatone and Westbutte—available water capacity, water erosion, slope, depth to bedrock, surface rock fragments

Use and Management

Livestock Grazing

Anatone and Westbutte
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.
- The suitability for seeding is very poor because of the surface rock fragments and steepness of slope.

Anatone
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.

Westbutte
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

14—Anawalt gravelly clay loam, 0 to 12 percent slopes

Composition

Anawalt and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light brownish gray gravelly clay loam
2 to 11 inches—light brownish gray clay loam
11 to 16 inches—brownish yellow clay
16 inches—fractured welded tuff

Soil Properties and Qualities

Depth: 4 to 11 inches to a claypan and 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Raz and Oreneva soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This unit is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the depth to the claypan.

15—Anawalt-Lonely complex, 5 to 30 percent slopes

Composition

Anawalt and similar soils—50 percent
Lonely and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,300 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Anawalt—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass; Lonely—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch needlegrass

Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anawalt

0 to 2 inches—light brownish gray gravelly clay loam
2 to 11 inches—light brownish gray clay loam
11 to 16 inches—brownish yellow clay
16 inches—fractured welded tuff

Properties and Qualities of Anawalt

Depth: 4 to 11 inches to a claypan and 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Lonely

0 to 4 inches—pale brown cobbly clay loam
4 to 16 inches—pale brown clay loam
16 to 24 inches—light brownish gray gravelly clay loam
24 inches—andesite

Properties and Qualities of Lonely

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Robson soils on hills and plateaus
- Pernty soils on hills
- Swalesilver soils in closed depressions on plateaus
- Rock outcrop

Major Soil Limitations

Anawalt and Lonely—water erosion, depth to bedrock
Anawalt—depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

Anawalt and Lonely
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Anawalt
- Bedrock restricts the rooting depth.

- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the depth to the claypan.

Lonely

- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the surface rock fragments.

16—Anawalt-Oreneva complex, 0 to 12 percent slopes

Composition

Anawalt and similar soils—60 percent
Oreneva and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,700 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Anawalt—(Shallow Gravelly Loam 10-12PZ) low sagebrush, Thurber needlegrass, Sandberg bluegrass; Oreneva—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anawalt

0 to 2 inches—light brownish gray gravelly clay loam
2 to 11 inches—light brownish gray clay loam
11 to 16 inches—brownish yellow clay
16 inches—fractured welded tuff

Properties and Qualities of Anawalt

Depth: 4 to 11 inches to a claypan and 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Oreneva

0 to 2 inches—pale brown gravelly loam
2 to 10 inches—brown clay loam
10 to 21 inches—light yellowish brown very gravelly loam
21 inches—welded tuff

Properties and Qualities of Oreneva

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Felcher soils on south-facing slopes of hills
- Freznik soils on plateaus
- Playas
- Rock outcrop

Major Soil Limitations

Anawalt and Oreneva—depth to bedrock
Anawalt—depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

Anawalt and Oreneva
- Depth to bedrock limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Anawalt
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Thurber needlegrass decreases.
- The suitability for seeding is poor because of the depth to the claypan.

Oreneva
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of droughtiness.

17—Anawalt-Raz complex, 2 to 10 percent slopes

Composition

Anawalt and similar soils—45 percent
Raz and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and welded tuff
Elevation: 4,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Anawalt—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass; Raz—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Anawalt

0 to 2 inches—light brownish gray gravelly clay loam
2 to 11 inches—light brownish gray clay loam
11 to 16 inches—brownish yellow clay
16 inches—fractured welded tuff

Properties and Qualities of Anawalt

Depth: 4 to 11 inches to a claypan and 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Raz

0 to 2 inches—pale brown very cobbly loam
2 to 7 inches—light gray gravelly clay loam
7 to 12 inches—light gray clay loam
12 to 23 inches—indurated duripan
23 inches—basalt

Properties and Qualities of Raz

Depth: 10 to 18 inches to a hardpan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Actem and Carryback soils on hills and plateaus
- Rock outcrop

- Swalesilver soils in closed depressions on plateaus

Major Soil Limitations

Anawalt and Raz—depth to bedrock
Anawalt—depth to a claypan, shrink-swell potential, corrosivity
Raz—depth to hardpan

Use and Management

Livestock Grazing

Anawalt and Raz
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Depth to bedrock limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.

Anawalt
- Depth to bedrock and the claypan restrict the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the depth to the claypan.

Raz
- The cemented hardpan restricts rooting depth.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

18—Ateron gravelly loam, 2 to 20 percent slopes

Composition

Ateron and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,000 to 5,100 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches

Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 5 inches—dark grayish brown gravelly loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Merlin, and Observation soils on hills
- Rubble land

Major Soil Limitations

Depth to bedrock, available water capacity, shrink-swell potential

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This unit commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is poor because of the low available water capacity.

19—Ateron-Rubble land complex, 2 to 35 percent slopes

Composition

Ateron and similar soils—50 percent
Rubble land—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,000 to 5,500 feet
Rangeland ecological site and characteristic vegetation: Ateron—(SR Mountain

Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ateron

0 to 5 inches—dark grayish brown very stony loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Merlin and Observation soils on hills

Major Soil Limitations

Surface stones, available water capacity, depth to bedrock, water erosion, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This unit commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

20—Ateron-Observation association, 5 to 30 percent slopes

Composition

Ateron and similar soils—60 percent
Observation and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Ateron—side slopes of 15 to 30 percent; Observation—ridges with slopes of 5 to 15 percent
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Ateron—(SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Observation—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ateron

0 to 5 inches—dark grayish brown extremely stony silt loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Observation

0 to 4 inches—dark grayish brown very stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Lambring soils on mountains
- Minam soils in drainageways
- Gaib soils on hills
- Rock outcrop and Rubble land

Major Soil Limitations

Ateron and Observation—water erosion, surface stones, depth to bedrock, shrink-swell potential
Ateron—available water capacity

Use and Management

Livestock Grazing

Ateron and Observation
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The surface stones prohibit the operation of ground seeding equipment.

Ateron
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is very poor because of the surface stones and low available water capacity.

Observation
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- If the site is in a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the surface stones.

21—Atlow very stony loam, 5 to 30 percent slopes

Composition

Atlow and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,300 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Kerrfield and Skedaddle soils on ridges and shoulders
- Deppy and Tumtum soils on old lake terraces
- Rock outcrop

Major Soil Limitations

Available water capacity, water erosion, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- A well-developed erosion pavement can limit the reestablishment of plants.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and surface stones.

22—Atlow-Rock outcrop complex, 5 to 30 percent slopes

Composition

Atlow and similar soils—70 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,300 to 5,200 feet

Rangeland ecological site and characteristic vegetation: Atlow—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Atlow

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Properties and Qualities of Atlow

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Kerrfield and Skedaddle soils on ridges
- Deppy and Tumtum soils on old lake terraces

Major Soil Limitations

Atlow—water erosion, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer and areas of Rock outcrop restrict the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- A well-developed erosion pavement can limit the reestablishment of plants.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and areas of Rock outcrop.

23—Atlow-Rock outcrop complex, 30 to 50 percent slopes

Composition

Atlow and similar soils—70 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,300 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Atlow—(Shallow Loamy Slopes 6-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Atlow

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Properties and Qualities of Atlow

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Kerrfield and Skedaddle soils on ridges

Major Soil Limitations

Atlow—water erosion, slope, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The steepness of slope, stones on the surface, and areas of Rock outcrop restrict the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity, steepness of slope, depth to bedrock, and areas of Rock outcrop.

24—Atlow-Skedaddle complex, 5 to 30 percent slopes

Composition

Atlow and similar soils—55 percent

Skedaddle and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Atlow—ridges; Skedaddle—side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and rhyolite
Elevation: 4,300 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Atlow—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass; Skedaddle—(Desert Loam 6-10PZ) shadscale, bud sagebrush, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Atlow

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Properties and Qualities of Atlow

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Skedaddle

0 to 3 inches—light brownish gray very stony clay loam
3 to 8 inches—grayish brown very cobbly clay loam
8 to 11 inches—light brown very cobbly clay loam
11 inches—fractured basalt

Properties and Qualities of Skedaddle

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Kerrfield soils on ridges
- Davey soils on lake terraces
- Rock outcrop
- Areas with overblown sand

Major Soil Limitations

Atlow and Skedaddle—water erosion, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Atlow and Skedaddle
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- This unit is suited to grazing in winter.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and surface stones.

Atlow
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.

Skedaddle
- As the site deteriorates, shadscale, annual forbs, and cheatgrass increase and bud sagebrush, Indian ricegrass, and bottlebrush squirreltail decrease.

25—Ausmus fine sandy loam, 0 to 1 percent slopes

Composition

Ausmus and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light brownish gray fine sandy loam
2 to 16 inches—light brownish gray silty clay loam
16 to 29 inches—light brownish gray silt loam
29 to 69 inches—light yellowish brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Water table: Present in spring

Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Lolak soils in depressions on lake plains
- Crowcamp soils in drainageways on lake plains
- Poujade soils on low lake terraces

Major Soil Limitations

Wind erosion, wetness, salinity, alkalinity, corrosivity

Use and Management

Irrigated Hayland

- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets and are seasonally ponded.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of bare soil, and leaving the soil surface rough.
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, sulphur amendments are needed because of the strong alkalinity of the soil.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

26—Ausmus fine sandy loam, 0 to 1 percent slopes, flooded

Composition

Ausmus and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,090 to 4,106 feet
Rangeland ecological site and characteristic vegetation: (Sodic Lake Terrace) black greasewood, inland saltgrass, Lemmon's alkaligrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light brownish gray fine sandy loam
2 to 16 inches—light brownish gray silty clay loam
16 to 29 inches—light brownish gray silt loam
29 to 69 inches—light yellowish brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Crowcamp and Thenarrows soils on lake plains
- Voltage soils on low lake terraces
- Sandgap soils on sand dunes

Major Soil Limitations

Wind erosion, wetness, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

27—Baconcamp stony clay loam, 15 to 30 percent north slopes

Composition

Baconcamp and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 6,200 to 7,300 feet
Rangeland ecological site and characteristic vegetation: (North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 20 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile

0 to 4 inches—very dark grayish brown stony clay loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Clamp, Carryback, and Pearlwise soils on mountainsides
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, cold climate

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the short growing season and surface rock fragments.

28—Baconcamp-Clamp complex, 5 to 20 percent slopes

Composition

Baconcamp and similar soils—45 percent
Clamp and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Basalt
Elevation: 6,500 to 7,900 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Shallow loam 16-25PZ) mountain big sagebrush, Idaho fescue, sheep fescue; Clamp—(Claypan 16-25PZ) low sagebrush, Idaho fescue, onespike oatgrass
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very stony clay loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Clamp

0 to 3 inches—grayish brown very stony clay loam
3 to 12 inches—grayish brown very cobbly clay loam
12 inches—fractured basalt

Properties and Qualities of Clamp

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Duff soils on mountainsides
- Hackwood soils in depressions
- Welch soils in drainageways
- Noname soils on ridges
- Rock outcrop

Major Soil Limitations

Baconcamp and Clamp—surface stones, depth to bedrock, cold climate
Clamp—available water capacity

Use and Management

Livestock Grazing

Baconcamp and Clamp
- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Baconcamp
- As the site deteriorates, big sagebrush, rabbitbrush, Sandberg bluegrass, mountain brome, and bottlebrush squirreltail increase and fescue, skyline bluegrass, and basin wildrye decrease.
- The suitability for seeding is poor because of the surface rock fragments and short growing season.

Clamp
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and fescue and onespike oatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity and short growing season.

29—Baconcamp-Clamp complex, 30 to 50 percent north slopes

Composition

Baconcamp and similar soils—45 percent
Clamp and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt
Elevation: 5,200 to 8,600 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Clamp—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very stony clay loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Clamp

0 to 3 inches—grayish brown very stony clay loam
3 to 12 inches—grayish brown very cobbly clay loam
12 inches—fractured basalt

Properties and Qualities of Clamp

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Dickle soils on ridges
- Carryback soils on side slopes
- Welch soils in drainageways
- Hackwood soils in depressions
- Rock outcrop

Major Soil Limitations

Baconcamp and Clamp—water erosion, slope, surface stones, depth to bedrock, cold climate
Clamp—available water capacity

Use and Management

Livestock Grazing

Baconcamp and Clamp

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Baconcamp

- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the steepness of slope and short growing season.

Clamp

- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity, steepness of slope, and short growing season.

30—Baconcamp-Clamp-Rock outcrop complex, 50 to 70 percent north slopes

Composition

Baconcamp and similar soils—45 percent
Clamp and similar soils—25 percent
Rock outcrop—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt
Elevation: 5,200 to 8,000 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Clamp—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown stony clay loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Typical Profile of Clamp

0 to 3 inches—grayish brown extremely stony clay loam
3 to 12 inches—grayish brown very cobbly clay loam
12 inches—fractured basalt

Properties and Qualities of Clamp

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Dickle soils on ridges
- Carryback soils on side slopes
- Welch soils in drainageways

Major Soil Limitations

Baconcamp and Clamp—water erosion, slope, depth to bedrock, cold climate
Clamp—available water capacity, surface stones

Use and Management

Livestock Grazing

Baconcamp and Clamp
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Baconcamp
- Steepness of slope restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope and short growing season.

Clamp
- The low available water capacity of the surface layer limits seedling survival.
- The extremely stony surface layer and steepness of slope prohibit the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity, surface rock fragments, steepness of slope, and short growing season.

31—Baconcamp-Rock outcrop complex, 3 to 30 percent slopes

Composition

Baconcamp and similar soils—70 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 5,100 to 9,200 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Shallow Loam 16-25PZ) mountain big sagebrush, Idaho fescue, sheep fescue
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very cobbly loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Clamp and Duff soils on side slopes
- Hackwood soils in depressions
- Welch soils in drainageways

Major Soil Limitations

Baconcamp—water erosion, depth to bedrock, cold climate

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

- As the site deteriorates, big sagebrush, rabbitbrush, Sandberg bluegrass, mountain brome, and bottlebrush squirreltail increase and fescue, skyline bluegrass, and basin wildrye decrease.
- The suitability for seeding is fair because of the short growing season, surface rock fragments, and areas of Rock outcrop.

32—Baconcamp-Rock outcrop complex, 30 to 70 percent north slopes

Composition

Baconcamp and similar soils—70 percent
Rock outcrop—15 percent
Contrasting soils—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 5,200 to 8,100 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very stony clay loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Hackwood soils in depressions
- Krackle and Hapgood soils on side slopes
- Welch soils in drainageways

Major Soil Limitations

Baconcamp—water erosion, slope, surface stones, depth to bedrock, cold climate

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.

- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the steepness of slope, short growing season, and areas of Rock outcrop.

33—Baconcamp-Rock outcrop-Hackwood complex, 30 to 80 percent slopes

Composition

Baconcamp and similar soils—40 percent
Rock outcrop—30 percent
Hackwood and similar soils—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Baconcamp—side slopes of 30 to 80 percent; Hackwood—side slopes of 30 to 50 percent
Parent material: Baconcamp—colluvium; Hackwood—loess and colluvium
Geology: Basalt and andesite
Elevation: 6,600 to 9,700 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Subalpine Slopes 16-35PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Hackwood—(Aspen 16-35PZ) quaking aspen, whortleleaf snowberry, sedge
Climatic factors:
Mean annual precipitation—30 to 40 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very stony loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Typical Profile of Hackwood

0 to 11 inches—brown gravelly loam
11 to 23 inches—brown loam

23 to 48 inches—brown gravelly loam
48 to 60 inches—light yellowish brown gravelly loam

Properties and Qualities of Hackwood

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Dickle soils on ridges
- Hapgood soils on side slopes
- Welch soils in drainageways

Major Soil Limitations

Baconcamp and Hackwood—water erosion, slope, cold climate
Baconcamp—surface stones, depth to bedrock
Hackwood—seepage

Use and Management

Livestock Grazing

Baconcamp and Hackwood
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is very poor because of the steepness of slope, short growing season, and areas of Rock outcrop.

Baconcamp
- Depth to bedrock limits the construction of water impoundments.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- As the site deteriorates, mountain big sagebrush, mountain brome, bottlebrush squirreltail, and bluegrasses increase and fescue and needlegrasses decrease.

Hackwood
- As the site deteriorates and available water becomes limited, willows, sedges, rushes, and tufted hairgrass decrease.

34—Baconcamp-Hapgood-Rock outcrop association, 15 to 50 percent slopes

Composition

Baconcamp and similar soils—40 percent
Hapgood and similar soils—35 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains

Position on landform: Baconcamp—south- and west-facing side slopes; Hapgood—north- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 7,800 to 8,500 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass; Hapgood—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very stony loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Hapgood

0 to 10 inches—dark gray gravelly sandy loam
10 to 43 inches—dark grayish brown very stony loam
43 inches—basalt

Properties and Qualities of Hapgood

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Clamp soils on side slopes
- Welch soils in swales

Major Soil Limitations

Baconcamp and Hapgood—water erosion, cold climate
Baconcamp—surface stones, depth to bedrock

Use and Management

Livestock Grazing

Baconcamp and Hapgood
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Baconcamp
- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the depth to bedrock and short growing season.

Hapgood
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the short growing season.

35—Baconcamp-Krackle-Rock outcrop association, 25 to 65 percent slopes

Composition

Baconcamp and similar soils—40 percent
Krackle and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Baconcamp—north- and east-facing side slopes; Krackle—south- and west-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 5,400 to 8,200 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Krackle—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 25 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown stony loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Krackle

0 to 4 inches—grayish brown cobbly clay loam

4 to 15 inches—brown very stony clay loam
15 to 30 inches—yellowish brown very stony clay loam
30 inches—fractured basalt

Properties and Qualities of Krackle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Clamp and Leemorris soils on side slopes

Major Soil Limitations

Baconcamp and Krackle—water erosion, slope, depth to bedrock, cold climate

Use and Management

Livestock Grazing

Baconcamp and Krackle
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is very poor because of the steepness of slope and short growing season.

Baconcamp
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.

Krackle
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.

36—Berdugo silt loam, 0 to 3 percent slopes

Composition

Berdugo and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,500 to 5,500 feet
Rangeland ecological site and characteristic vegetation: (Clayey Playette) Wyoming big sagebrush, bottlebrush squirreltail, Thurber needlegrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches

Mean annual air temperature—45 to 49 degrees F
Frost-free period—70 to 100 days

Typical Profile

0 to 1 inch—light brownish gray silt loam
1 to 17 inches—pale brown silty clay loam and silt loam
17 to 26 inches—pale brown loam
26 to 39 inches—pale brown loamy sand
39 to 65 inches—pale brown extremely gravelly sand and gravelly sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Spangenburg soils on lake terraces
- Boulder Lake soils in lower lying areas of depressions
- Swaler soils in higher lying areas of depressions
- Playas

Major Soil Limitation

Corrosivity

Use and Management

Livestock Grazing

- Crusting of the soil surface reduces infiltration and restricts seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- This soil is susceptible to invasion by povertyweed and Russian thistle.
- With continued heavy grazing, Sandberg bluegrass and bottlebrush squirreltail will decrease in abundance.
- The suitability for seeding is fair because of droughtiness.

37—Berdugo-Catlow complex, 0 to 5 percent slopes

Composition

Berdugo and similar soils—50 percent
Catlow and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Berdugo—plane; Catlow—convex
Parent material: Berdugo—lacustrine sediment; Catlow—alluvium
Elevation: 4,500 to 5,500 feet

Rangeland ecological site and characteristic vegetation: Berdugo—(Clayey Playette) Wyoming big sagebrush, bottlebrush squirreltail, Thurber needlegrass, Sandberg bluegrass; Catlow—(Loamy 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Berdugo

0 to 1 inch—light brownish gray silt loam
1 to 17 inches—pale brown silty clay loam and silt loam
17 to 26 inches—pale brown loam
26 to 39 inches—pale brown loamy sand
39 to 65 inches—pale brown extremely gravelly sand and gravelly sandy loam

Properties and Qualities of Berdugo

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Catlow

0 to 3 inches—pale brown gravelly sandy loam
3 to 9 inches—brown very gravelly sandy clay loam
9 to 22 inches—pale brown very gravelly sandy clay loam
22 to 31 inches—pale brown extremely gravelly sandy loam
31 to 62 inches—multicolored extremely gravelly sand

Properties and Qualities of Catlow

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Spangenburg soils on lake terraces
- Boulder Lake soils in lower lying areas of depressions
- Swaler soils in higher lying areas of depressions
- Playas

Major Soil Limitations

Berdugo and Catlow—corrosivity
Catlow—available water capacity, wind erosion

Use and Management

Livestock Grazing

Berdugo and Catlow
- This unit is suited to grazing in winter.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Berdugo
- Crusting of the soil surface reduces infiltration and restricts seedling emergence and survival.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- This soil is susceptible to invasion by povertyweed and Russian thistle.
- Povertyweed invades after flooding.
- With continued heavy grazing, Sandberg bluegrass and bottlebrush squirreltail will decrease in abundance.
- Indian ricegrass is more abundant in areas that do not have an erosion pavement or that have a coarse-textured surface layer.
- The suitability for seeding is fair because of droughtiness.

Catlow
- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity and droughtiness.

38—Bigfrog-Brock complex, 8 to 40 percent slopes

Composition

Bigfrog and similar soils—45 percent
Brock and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Fan terraces
Position on landform: Bigfrog—north- and east-facing side slopes; Brock—south- and west-facing side slopes
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Bigfrog—(North Slopes 6-10PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Brock—(South Slopes 6-10PZ) ephedra, purple sage, desert needlegrass, Indian ricegrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Bigfrog

0 to 3 inches—brown very cobbly sandy clay loam
3 to 10 inches—brown gravelly sandy clay loam
10 to 18 inches—pale brown gravelly sandy clay loam
18 to 38 inches—extremely gravelly indurated duripan
38 to 60 inches—stratified very gravelly sandy loam and very gravelly loamy sand

Properties and Qualities of Bigfrog

Depth: 8 to 18 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Corrosivity to steel: High

Typical Profile of Brock

0 to 3 inches—light brownish gray very gravelly sandy loam
3 to 7 inches—light brownish gray very gravelly sandy clay loam
7 to 10 inches—pale brown very gravelly sandy loam
10 to 16 inches—extremely gravelly indurated duripan
16 to 60 inches—stratified very gravelly sandy loam and very gravelly loamy sand

Properties and Qualities of Brock

Depth: 8 to 18 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Deppy, Tumtum, and Catlow soils on lake terraces

Major Soil Limitations

Bigfrog and Brock—water erosion, depth to a hardpan, seepage, available water capacity
Brock—wind erosion

Use and Management

Livestock Grazing

Bigfrog and Brock
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is very poor because of the low available water capacity and depth to the hardpan.
- This unit is suited to grazing in winter.

Bigfrog
- As the site deteriorates, ephedra and big sagebrush increase and bluebunch wheatgrass and Thurber needlegrass decrease.

Brock
- The low available water capacity of the surface layer limits seedling survival.

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, ephedra and purple sage increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.

39—Bocker-Westbutte complex, 5 to 25 percent slopes

Composition

Bocker and similar soils—50 percent
Westbutte and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 5,300 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Bocker—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Westbutte—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Bocker

0 to 3 inches—pale brown extremely stony loam
3 to 7 inches—brown very stony loam
7 inches—basalt

Properties and Qualities of Bocker

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Noname soils on hills
- Rock outcrop

Major Soil Limitations

Bocker and Westbutte—available water capacity, surface stones, depth to bedrock

Use and Management

Livestock Grazing

Bocker and Westbutte
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- The extremely stony surface layer prohibits the operation of ground seeding equipment and limits livestock movement and the distribution of grazing.

Bocker
- The bedrock restricts the rooting depth.
- Special design is needed for fences because the very shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and surface stones.

Westbutte
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones.

40—Boravall-Playas complex, 0 to 3 percent slopes

Composition

Boravall and similar soils—55 percent
Playas—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Boravall—plane; Playas—plane or concave
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Boravall—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Boravall

0 to 9 inches—light gray silty clay loam
9 to 19 inches—light gray silty clay
19 to 43 inches—very pale brown silty clay loam
43 to 60 inches—light gray silty clay loam

Properties and Qualities of Boravall

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in winter and spring
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Playas

0 to 60 inches—stratified loamy, silty, and clayey lacustrine sediment

Properties and Qualities of Playas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: May be present throughout the year
Water table: Present throughout the year
Permeability: Very slow
Hazard of erosion: Water—slight; wind—slight to severe
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Turpin, Alvodest, and Homefield soils on lake plains

Major Soil Limitations

Boravall and Playas—available water capacity, wind erosion, shrink-swell potential, salinity, alkalinity, wetness, corrosivity

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

- This unit is suited to grazing in winter.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the low available water capacity of the surface layer and strong salinity and alkalinity.

41—Borobey sandy loam, 2 to 15 percent slopes

Composition

Borobey and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: High stream terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock and volcanic ash
Elevation: 4,400 to 5,300 feet
Rangeland ecological site and characteristic vegetation: (Pumice 10-12PZ) basin big sagebrush, antelope bitterbrush, Idaho fescue, western needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—brown sandy loam
3 to 11 inches—brown gravelly loam
11 to 27 inches—brown sandy loam and gravelly loamy sand
27 to 60 inches—light yellowish brown gravelly loamy sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Gradon soils on fan terraces
- Gochea soils on lake terraces and in drainageways

Major Soil Limitations

Water erosion, wind erosion, corrosivity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of wind erosion.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and rabbitbrush increase and Idaho fescue, needlegrasses, and antelope bitterbrush decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

42—Boulder Lake clay, 0 to 2 percent slopes

Composition

Boulder Lake and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains and depressions of plateaus
Slope features: Plane and concave
Parent material: Lacustrine sediment
Geology: Mixed igneous rock
Elevation: 5,300 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—10 to 14 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 1 inch—gray clay
1 to 42 inches—grayish brown clay
42 to 62 inches—brown silty clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring and early in summer
Water table: Present in spring and early in summer
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Spangenburg soils in convex areas

Major Soil Limitations

Wetness, shrink-swell potential, permeability, corrosivity, surface texture

Use and Management

Irrigated Hayland

- The very slow permeability restricts water percolation. During the period of snowmelt and runoff in spring, the soil surface becomes saturated. To avoid soil

compaction or rutting and to maintain soil tilth, grazing of livestock and the use of equipment should be deferred until the soil is adequately drained.
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- This unit provides important food and cover for wetland wildlife.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Livestock Grazing

- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Silver sagebrush resprouts after a fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- The suitability for seeding is fair because of the clayey surface texture.

43—Boulder Lake-Merlin complex, 0 to 3 percent slopes

Composition

Boulder Lake and similar soils—65 percent
Merlin and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Boulder Lake—concave; Merlin—convex
Parent material: Boulder Lake—lacustrine sediment; Merlin—residuum and colluvium
Geology: Boulder Lake—mixed igneous rock; Merlin—basalt, welded tuff, and andesite
Elevation: 4,500 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Boulder Lake—(Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Boulder Lake

0 to 1 inch—gray clay loam
1 to 42 inches—grayish brown clay
42 to 62 inches—brown silty clay loam

Properties and Qualities of Boulder Lake

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring and early in summer
Water table: Present in spring and early in summer
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Merlin

0 to 7 inches—brown very gravelly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Minam soils in drainageways
- Vitale soils on hills and plateaus
- Doyn soils on plateaus
- Rock outcrop

Major Soil Limitations

Boulder Lake and Merlin—shrink-swell potential
Boulder Lake—corrosivity, wetness, surface texture
Merlin—depth to bedrock, depth to a claypan, available water capacity

Use and Management

Livestock Grazing

Boulder Lake and Merlin

- The upper part of the soils is saturated following snowmelt.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Boulder Lake

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves the habitat for migrating waterfowl.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Silver sagebrush resprouts after a fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.

- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is fair because of the clayey surface texture.

Merlin
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity and depth to the claypan.

44—Boulder Lake-Spangenburg complex, 0 to 2 percent slopes

Composition

Boulder Lake and similar soils—45 percent
Spangenburg and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Boulder Lake—lake plains; Spangenburg—lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,500 to 5,300 feet
Rangeland ecological site and characteristic vegetation: Boulder Lake—(Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye; Spangenburg—(Clayey Playette) Wyoming big sagebrush, bottlebrush squirreltail, Thurber needlegrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—40 to 49 degrees F
Frost-free period—50 to 100 days

Typical Profile of Boulder Lake

0 to 1 inch—gray clay
1 to 42 inches—grayish brown clay
42 to 62 inches—brown silty clay loam

Properties and Qualities of Boulder Lake

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring and early in summer
Water table: Present in spring and early in summer
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Spangenburg

0 to 2 inches—light brownish gray silt loam
2 to 6 inches—pale brown and pale yellowish brown silty clay
6 to 15 inches—yellowish brown silty clay
15 to 34 inches—pale brown silty clay loam
34 to 60 inches—very pale brown loam

Properties and Qualities of Spangenburg

Depth: 2 to 10 inches to a claypan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Swaler soils in depressions

Major Soil Limitations

Boulder Lake and Spangenburg—shrink-swell potential, corrosivity
Boulder Lake—wetness, permeability, surface texture
Spangenburg—depth to a claypan

Use and Management

Irrigated Hayland

Boulder Lake
- Ponding and a seasonal high water table restrict haying and grazing. Soil wetness increases the risk of winterkill of plants.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- The very slow and slow permeability of the clayey layer restricts water percolation. During the period of snowmelt and runoff in spring, the soil surface becomes saturated. To avoid soil compaction or rutting and to maintain soil tilth, grazing of livestock and the use of equipment should be deferred until the soils are adequately drained.

Livestock Grazing

Boulder Lake and Spangenburg
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Boulder Lake
- This soil provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Silver sagebrush resprouts after a fire.

- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is fair because of the clayey surface texture.

Spangenburg
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- This soil is susceptible to invasion by povertyweed and Russian thistle.
- With continued heavy grazing, the abundance of Sandberg bluegrass and bottlebrush squirreltail decreases.
- The suitability for seeding is poor because of the depth to the claypan.

45—Brabble-Calderwood complex, 5 to 25 percent slopes

Composition

Brabble and similar soils—50 percent
Calderwood and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Old alluvium over bedrock
Geology: Fractured basalt and andesite
Elevation: 4,800 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Brabble—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass; Calderwood—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Brabble

0 to 3 inches—grayish brown gravelly sandy clay loam
3 to 9 inches—light brownish gray sandy clay loam
9 to 18 inches—yellowish brown clay loam
18 to 26 inches—light yellowish brown loam
26 to 33 inches—pale brown loam
33 to 38 inches—indurated duripan
38 inches—fractured andesite

Properties and Qualities of Brabble

Depth: 20 to 40 inches to a hardpan and 30 to 50 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Calderwood

0 to 3 inches—pale brown very gravelly loam

3 to 12 inches—light yellowish brown very cobbly clay loam
12 to 18 inches—pale brown very stony clay loam
18 inches—fractured andesite

Properties and Qualities of Calderwood

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Skedaddle and Kerrfield soils on hills
- Rock outcrop

Major Soil Limitations

Brabble and Calderwood—water erosion, depth to bedrock
Brabble—depth to a hardpan, corrosivity
Calderwood—available water capacity

Use and Management

Livestock Grazing

Brabble and Calderwood
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.

Brabble
- Depth to the hardpan and to bedrock limits construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is fair because of the low available water capacity.

Calderwood
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The suitability for seeding is poor because of the low available water capacity.

46—Brace-Coztur-Rock outcrop complex, 2 to 20 percent slopes

Composition

Brace and similar soils—40 percent
Coztur and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Brace—colluvium; Coztur—residuum
Geology: Basalt, andesite, welded tuff, and ashflow tuff
Elevation: 4,100 to 4,700 feet
Rangeland ecological site and characteristic vegetation: Brace and Coztur—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Brace

0 to 6 inches—pale brown very stony loam
6 to 13 inches—pale brown clay loam
13 to 21 inches—very pale brown loam
21 to 32 inches—yellow loam
32 to 36 inches—indurated duripan
36 inches—fractured basalt

Properties and Qualities of Brace

Depth: 20 to 37 inches to a hardpan and 22 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Coztur

0 to 9 inches—pale brown very stony loam
9 to 13 inches—brown gravelly sandy clay loam
13 to 18 inches—light yellowish brown gravelly sandy clay loam
18 inches—ashflow tuff

Properties and Qualities of Coztur

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Actem and Anawalt soils on hills
- Reallis soils on terraces

Major Soil Limitations

Brace and Coztur—water erosion, surface stones, depth to bedrock
Brace—depth to a hardpan
Coztur—corrosivity

Use and Management

Livestock Grazing

Brace and Coztur

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- These soils are susceptible to invasion by cheatgrass.

Brace

- Depth to the hardpan and to bedrock limits the construction of water impoundments.
- The suitability for seeding is poor because of the surface rock fragments.

Coztur

- The upper part of the soil is saturated following snowmelt.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

47—Brace-Vergas complex, 2 to 20 percent slopes

Composition

Brace and similar soils—45 percent
Vergas and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Position on landform: Brace—convex areas that have slopes of 2 to 20 percent; Vergas—concave areas that have slopes of 2 to 8 percent
Parent material: Brace—residuum and old alluvium; Vergas—alluvium
Geology: Brace—basalt, andesite, and welded tuff; Vergas—mixed igneous rock
Elevation: 4,100 to 4,700 feet
Rangeland ecological site and characteristic vegetation: Brace and Vergas—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Brace

0 to 6 inches—pale brown cobbly fine sandy loam
6 to 13 inches—pale brown clay loam
13 to 21 inches—very pale brown loam
21 to 32 inches—yellow loam

32 to 36 inches—indurated duripan
36 inches—fractured basalt

Properties and Qualities of Brace

Depth: 20 to 37 inches to a hardpan and 22 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate

Typical Profile of Vergas

0 to 6 inches—light brownish gray fine sandy loam
6 to 14 inches—yellowish brown gravelly sandy clay loam
14 to 20 inches—light yellowish brown gravelly loamy sand
20 to 62 inches—light yellowish brown extremely gravelly coarse sand

Properties and Qualities of Vergas

Depth: 14 to 35 inches to the hard, brittle layer and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow over very rapid
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Sagehen and Actem soils on hills
- Rock outcrop

Major Soil Limitations

Brace and Vergas—wind erosion
Brace—water erosion, depth to bedrock, depth to a hardpan
Vergas—seepage, corrosivity

Use and Management

Livestock Grazing

Brace and Vergas

- Maintaining adequate plant cover minimizes the risk of wind erosion.

Brace

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to the hardpan and to bedrock limits construction of water impoundments.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the depth to bedrock.

Vergas

- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.

- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

48—Bruncan complex, 0 to 5 percent slopes

Composition

Bruncan, thick surface, and similar soils—50 percent
Bruncan, thin surface, and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Old alluvium over basalt
Geology: Basalt
Elevation: 4,700 to 5,800 feet
Rangeland ecological site and characteristic vegetation: Bruncan—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass; Bruncan—(Thin Surface 8-14PZ) black sagebrush, bottlebrush squirreltail, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Bruncan, Thick Surface

0 to 5 inches—light gray cobbly fine sandy loam
5 to 10 inches—very pale brown clay loam
10 to 15 inches—light brown clay loam
15 to 17 inches—pink indurated duripan
17 inches—basalt

Typical Profile of Bruncan, Thin Surface

0 to 1 inch—light gray cobbly fine sandy loam
1 to 10 inches—very pale brown clay loam
10 to 15 inches—light brown clay loam
15 to 17 inches—pink indurated duripan
17 inches—basalt

Properties and Qualities of Bruncan

Depth: 11 to 20 inches to a hardpan and 13 to 30 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Anawalt and Fourwheel soils on plateaus
- Vining soils on hills
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a hardpan, wind erosion, corrosivity

Use and Management

Livestock Grazing

- Bedrock and the cemented hardpan restrict the rooting depth and limit the construction of water impoundments.
- The upper part of the soils is saturated following snowmelt.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.
- The suitability for seeding is poor because of the low available water capacity.

49—Brunzell gravelly loam, 0 to 2 percent slopes

Composition

Brunzell and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Landform: Drainageways
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,600 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (SR Dry Mountain Swale 12-16PZ) mountain big sagebrush, Idaho fescue, sedge
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—grayish brown gravelly loam
2 to 11 inches—brown gravelly loam
11 to 18 inches—brown gravelly sandy clay loam
18 to 30 inches—yellowish brown very gravelly sandy clay loam
30 to 47 inches—light yellowish brown extremely gravelly loamy coarse sand
47 to 62 inches—pale brown extremely gravelly loamy coarse sand

Soil Properties and Qualities

Depth: 25 to 40 inches to sand and gravel and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Roschene and Welch soils on stream terraces

Major Soil Limitation

Seepage

Use and Management

Livestock Grazing

- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, sedges, bluegrasses, and bottlebrush squirrel increase and Idaho fescue decreases.
- As the streambanks become unstable, the channels deepen and widen and the subsurface waterflow is reduced, resulting in drier conditions and reduced production.
- The suitability for seeding is good.

50—Bucklake very stony clay loam, 20 to 50 percent north slopes

Composition

Bucklake and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: North- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain North 9-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—brown very stony clay loam
2 to 16 inches—brown gravelly clay
16 to 31 inches—yellowish brown gravelly clay loam
31 inches—welded tuff

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Drewsey, Mahoon, and Risley soils on hillsides
- Rock outcrop

Major Soil Limitations

Water erosion, slope, surface stones, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The steepness of slope and surface stones restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the surface stones and steepness of slope.

51—Bucklake-Mahoon-Rubble land complex, 20 to 40 percent slopes

Composition

Bucklake and similar soils—35 percent
Mahoon and similar soils—35 percent
Rubble land—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Bucklake—north- and east-facing side slopes; Mahoon—south- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Bucklake—basalt, andesite, rhyolite, and welded tuff; Mahoon—tuffaceous sedimentary rock and diatomaceous earth; Rubble land—igneous rock
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Bucklake—(SR Mountain North 9-12PZ) Wyoming big sagebrush, Idaho fescue; Mahoon—(SR Clayey South 9-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Bucklake

0 to 2 inches—brown very cobbly loam
2 to 16 inches—brown gravelly clay
16 to 31 inches—yellowish brown gravelly clay loam
31 inches—welded tuff

Properties and Qualities of Bucklake

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches

Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Mahoon

0 to 3 inches—grayish brown very cobbly loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay
18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Poall, Risley, and Drewsey soils on hills

Major Soil Limitations

Bucklake and Mahoon—water erosion, slope, depth to bedrock, shrink-swell potential
Mahoon—depth to a claypan, corrosivity

Use and Management

Livestock Grazing

Bucklake and Mahoon
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Bucklake
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the surface rock fragments.

Mahoon
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan and surface rock fragments.

52—Calderwood very gravelly loam, 5 to 25 percent slopes

Composition

Calderwood and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Old alluvium over bedrock
Geology: Fractured basalt and andesite
Elevation: 4,800 to 6,100 feet
Rangeland ecological site and characteristic vegetation: (Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—pale brown very gravelly loam
3 to 12 inches—light yellowish brown very cobbly clay loam
12 to 18 inches—pale brown very stony clay loam
18 inches—fractured andesite

Soil Properties and Qualities

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Atlow and Kerrfield soils on hills
- Enko soils on lake terraces
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

- The upper part of the soil is saturated following snowmelt.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is poor because of the low available water capacity.

53—Calderwood-McConnel complex, 0 to 20 percent slopes

Composition

Calderwood and similar soils—65 percent
McConnel and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and lake terraces
Position on landform: Calderwood—hills with slopes of 0 to 10 percent; McConnel—lake terraces with slopes of 0 to 20 percent
Parent material: Calderwood—old alluvium over bedrock; McConnel—alluvium
Geology: Calderwood—fractured basalt and andesite; McConnel—mixed igneous rock
Elevation: 4,650 to 4,850 feet
Rangeland ecological site and characteristic vegetation: Calderwood—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass; McConnel—(Loamy 8-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Calderwood

0 to 3 inches—pale brown cobbly loam
3 to 12 inches—light yellowish brown very cobbly clay loam
12 to 18 inches—pale brown very stony clay loam
18 inches—fractured andesite

Properties and Qualities of Calderwood

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of McConnel

0 to 3 inches—grayish brown very gravelly sandy loam
3 to 11 inches—brown gravelly sandy loam
11 to 25 inches—brown very cobbly loamy sand
25 to 52 inches—brown extremely cobbly loamy sand
52 to 62 inches—brown extremely gravelly loamy sand

Properties and Qualities of McConnel

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Deppy and Tumtum soils on old lake terraces
- Atlow soils on hills
- Davey soils on lake terraces
- Rock outcrop

Major Soil Limitations

Calderwood and McConnel—available water capacity
Calderwood—depth to bedrock
McConnel—wind erosion, seepage

Use and Management

Livestock Grazing

Calderwood and McConnel
- This unit is suited to grazing in winter.
- The suitability for seeding is poor because of the low available water capacity.

Calderwood
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.

McConnel
- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.

54—Carryback silty clay loam, 2 to 20 percent slopes

Composition

Carryback and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus

Slope features: Plane and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 4,700 feet
Rangeland ecological site and characteristic vegetation: (Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—pale brown silty clay loam
3 to 7 inches—brown silty clay loam
7 to 24 inches—brown clay
24 inches—basalt

Soil Properties and Qualities

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carvix soils on stream terraces
- Lambring soils on steep north-facing mountainsides
- Felcher soils on steep, south-facing mountainsides

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the depth to the claypan.

55—Carryback cobbly clay loam, 5 to 20 percent slopes

Composition

Carryback and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Plane and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,800 to 5,800 feet
Rangeland ecological site and characteristic vegetation: (Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—pale brown cobbly clay loam
7 to 24 inches—brown clay
24 inches—basalt

Soil Properties and Qualities

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Madeline and Bocker soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the depth to the claypan.

56—Carryback very stony clay loam, 2 to 20 percent slopes

Composition

Carryback and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Plane and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 4,700 feet
Rangeland ecological site and characteristic vegetation: (Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—pale brown very stony clay loam
7 to 24 inches—brown clay
24 inches—basalt

Soil Properties and Qualities

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Pernty soils on higher lying, south-facing mountainsides
- Riddleranch soils on lower lying, south-facing mountainsides
- Lambring soils on north-facing mountainsides

Major Soil Limitations

Surface stones, depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead and by western juniper.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the depth to the claypan and surface stones.

57—Carryback very gravelly loam, low elevation, 3 to 20 percent slopes

Composition

Carryback and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Plane and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,000 to 4,700 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—pale brown very gravelly loam
7 to 24 inches—brown clay
24 inches—basalt

Soil Properties and Qualities

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carvix soils on stream terraces
- Felcher soils on steep, south-facing mountainsides
- Lambring soils on steep, north-facing mountainsides
- Swalesilver soils in depressions of plateaus

Major Soil Limitations

Depth to bedrock, shrink-swell potential, depth to a claypan

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush,

and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the depth to the claypan.

58—Carryback complex, 2 to 20 percent slopes

Composition

Carryback, thin surface, and similar soils—50 percent
Carryback, thick surface, and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Plane and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Carryback—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Carryback, thick surface—(Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Carryback, Thin Surface

0 to 3 inches—pale brown silty clay loam
3 to 7 inches—brown silty clay loam
7 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, Thin Surface

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Carryback, Thick Surface

0 to 10 inches—pale brown very gravelly loam
10 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, Thick Surface

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Pernty soils on steep, south-facing hillslopes

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Carryback, thin surface, and Carryback, thick surface
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soils is saturated following snowmelt.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.

Carryback, thin surface
- This soil is susceptible to invasion by cheatgrass and medusahead and by western juniper.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the depth to the claypan.

Carryback, thick surface
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the depth to the claypan.

59—Carryback complex, 20 to 40 percent slopes

Composition

Carryback, thin surface, and similar soils—35 percent
Carryback, south slopes, and similar soils—30 percent
Carryback, north slopes, and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Carryback, thin surface—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Carryback, south slopes—(Droughty South Slopes 11-13PZ) basin big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Carryback, north slopes—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Carryback, Thin Surface

0 to 7 inches—pale brown silty clay loam
7 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, Thin Surface

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Carryback, South Slopes

0 to 10 inches—pale brown gravelly clay loam
10 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, South Slopes

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Carryback, North Slopes

0 to 10 inches—pale brown gravelly clay loam
10 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, North Slopes

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Felcher soils on south-facing hillsides
- Carvix soils on stream terraces
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Carryback, thin surface, south slopes, and north slopes
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.

- The upper part of the soils is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.

Carryback, thin surface
- This soil is susceptible to invasion by cheatgrass and medusahead and by western juniper.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the depth to the claypan.

Carryback, south slopes
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the depth to the claypan.

Carryback, north slopes
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass and western juniper.
- The suitability for seeding is poor because of the depth to the claypan.

60—Carryback complex, low elevation, 20 to 40 percent slopes

Composition

Carryback, south slopes, and similar soils—45 percent
Carryback, north slopes, and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Carryback, south slopes—south- and west-facing side slopes; Carryback, north slopes—north- and east-facing side slopes
Parent material: Colluvium, residuum, and loess
Geology: Basalt, andesite, and welded tuff
Elevation: 4,000 to 4,700 feet
Rangeland ecological site and characteristic vegetation: Carryback, south slopes—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Carryback, north slopes—(North Slopes 10-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Carryback, South Slopes

0 to 10 inches—pale brown very gravelly loam
10 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, South Slopes

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Carryback, North Slopes

0 to 10 inches—pale brown very gravelly loam
10 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback, North Slopes

Depth: 7 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carvix soils on stream terraces
- Reluctan soils on hills
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Carryback, south and north slopes
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soils is saturated following snowmelt.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The suitability for seeding is poor because of the depth to the claypan.

Carryback, south slopes
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.

Carryback, north slopes
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

61—Carryback-Pearlwise complex, 3 to 15 percent slopes

Composition

Carryback and similar soils—55 percent
Pearlwise and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Plane and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,500 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Carryback—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Pearlwise—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Carryback

0 to 7 inches—pale brown extremely cobbly clay loam
7 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Pearlwise

0 to 22 inches—very dark grayish brown clay loam
22 inches—basalt

Properties and Qualities of Pearlwise

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Duff soils on north-facing side slopes
- Clamp soils on ridges of north-facing side slopes
- Welch soils in drainageways
- Rock outcrop

Major Soil Limitations

Carryback and Pearlwise—depth to bedrock
Carryback—available water capacity, surface rock fragments, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Carryback and Pearlwise
- Depth to bedrock limits the construction of water impoundments.

Carryback
- The low available water capacity of the surface layer limits seedling survival.
- The extremely cobbly surface layer prohibits the operation of ground seeding equipment.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Pearlwise
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

62—Carryback-Pearlwise-Rock outcrop complex, 25 to 50 percent north slopes

Composition

Carryback and similar soils—45 percent
Pearlwise and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,500 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Carryback—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Pearlwise—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Carryback

0 to 7 inches—pale brown extremely cobbly clay loam
7 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Pearlwise

0 to 22 inches—very dark grayish brown clay loam
22 inches—basalt

Properties and Qualities of Pearlwise

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Baconcamp soils on north-facing side slopes
- Clamp soils on ridges of north-facing side slopes
- Welch soils in drainageways

Major Soil Limitations

Carryback and Pearlwise—water erosion, slope, depth to bedrock
Carryback—available water capacity, surface rock fragments, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Carryback and Pearlwise
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.

Carryback
- The extremely cobbly surface layer prohibits the operation of ground seeding equipment.
- The low available water capacity of the surface layer limits seedling survival.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.

- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the surface rock fragments and steepness of slope.

Pearlwise

- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the steepness of slope.

63—Carryback-Dickle association, 12 to 35 percent north slopes

Composition

Carryback and similar soils—50 percent
Dickle and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: Carryback—lower lying (below 6,000 feet), north- and east-facing side slopes; Dickle—higher lying (above 6,000 feet), north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,200 to 6,700 feet
Rangeland ecological site and characteristic vegetation: Carryback and Dickle—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—30 to 80 days

Typical Profile of Carryback

0 to 7 inches—pale brown very stony clay loam
7 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Dickle

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 6 inches—grayish brown clay loam

6 to 14 inches—brown clay loam
14 inches—basalt

Properties and Qualities of Dickle

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Felcher and Fourwheel soils on south-facing side slopes
- Sagehen soils in depressions
- Rock outcrop

Major Soil Limitations

Carryback and Dickle—water erosion, depth to bedrock, available water capacity
Carryback—surface stones, depth to a claypan, shrink-swell potential
Dickle—cold climate, surface rock fragments

Use and Management

Livestock Grazing

Carryback and Dickle
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The upper part of the soils is saturated following snowmelt.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- These soils are susceptible to invasion by cheatgrass.

Carryback
- The very stony surface layer restricts the operation of equipment.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is poor because of the depth to the claypan, surface rock fragments, and low available water capacity.

Dickle
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is very poor because of the low available water capacity, surface rock fragments, depth to bedrock, and short growing season.

64—Carvix silt loam, 0 to 5 percent slopes

Composition

Carvix and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Convex and plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Swale 10-14PZ) basin big sagebrush, basin wildrye, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 14 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 6 inches—brown silt loam
6 to 19 inches—brown silt loam
19 to 39 inches—brown loam
39 to 60 inches—yellowish brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Fury and Skunkfarm soils on lake plains

Major Soil Limitation

Corrosivity

Use and Management

Irrigated Hayland

- This soil is well suited to irrigated hayland.

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and basin wildrye, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

65—Clamp-Baconcamp-Hackwood complex, 20 to 35 percent north slopes

Composition

Clamp and similar soils—40 percent
Baconcamp and similar soils—30 percent

Hackwood and similar soils—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Clamp and Baconcamp—colluvium; Hackwood—loess and colluvium
Geology: Basalt
Elevation: 5,200 to 8,000 feet
Rangeland ecological site and characteristic vegetation: Clamp—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Baconcamp—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Hackwood—(Aspen 16-35PZ) quaking aspen, whortleleaf snowberry, sedge
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Clamp

0 to 3 inches—grayish brown very stony clay loam
3 to 12 inches—grayish brown very cobbly clay loam
12 inches—fractured basalt

Properties and Qualities of Clamp

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very stony clay loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Hackwood

0 to 11 inches—brown gravelly loam
11 to 23 inches—brown loam
23 to 48 inches—brown gravelly loam
48 to 60 inches—light yellowish brown gravelly loam

Properties and Qualities of Hackwood

Depth: More than 60 inches to bedrock
Drainage class: Well drained

Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Pearlwise soils on ridges
- Welch soils in drainageways
- Duff soils on side slopes at higher elevations
- Rock outcrop

Major Soil Limitations

Clamp, Baconcamp, and Hackwood—water erosion, cold climate
Clamp and Baconcamp—depth to bedrock
Clamp—available water capacity
Baconcamp—surface stones
Hackwood—seepage

Use and Management

Livestock Grazing

Clamp, Baconcamp, and Hackwood
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Clamp
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity and short growing season.

Baconcamp
- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the surface rock fragments and short growing season.

Hackwood
- The risk of seepage limits the construction of water impoundments.
- Excessive use of aspen reduces its productivity and potential for regeneration.
- As the site deteriorates, shrubs and forbs increase and needlegrasses decrease.
- The suitability for seeding is fair because of the short growing season.

66—Coztur sandy loam, 2 to 15 percent slopes

Composition

Coztur and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt, welded tuff, and ashflow tuff
Elevation: 4,200 to 5,600 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—pale brown sandy loam
9 to 13 inches—brown gravelly sandy clay loam
13 to 18 inches—light yellowish brown gravelly sandy clay loam
18 inches—ashflow tuff

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Gochea soils on terraces
- Swalesilver soils in closed depressions of plateaus
- Actem soils on plateaus
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, wind erosion, corrosivity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity.

67—Crowcamp loam, 0 to 1 percent slopes

Composition

Crowcamp and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—gray loam
3 to 30 inches—grayish brown and dark gray clay
30 to 53 inches—grayish brown and light olive gray loam
53 to 68 inches—light olive gray very gravelly loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus and Lolak soils on lake plains
- Poujade soils on low lake terraces

Major Soil Limitations

Corrosivity, wetness, shrink-swell potential

Use and Management

Irrigated Hayland

- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets and are seasonally ponded.

Livestock Grazing

- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Silver sagebrush resprouts after a fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is good.

68—Crowcamp-Ausmus-Poujade complex, 0 to 5 percent slopes

Composition

Crowcamp and similar soils—50 percent
Ausmus and similar soils—20 percent
Poujade and similar soils—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Crowcamp and Ausmus—lake plains; Poujade—low lake terraces
Position on landform: Crowcamp and Ausmus—plane areas with slopes of 0 to 2 percent; Poujade—convex areas with slopes of 1 to 5 percent
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Crowcamp—(Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye; Ausmus—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass; Poujade—(Dry Basin) basin big sagebrush, black greasewood, basin wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Crowcamp

0 to 3 inches—gray silty clay loam

3 to 30 inches—grayish brown and dark gray clay
30 to 53 inches—grayish brown and light olive gray loam
53 to 68 inches—light olive gray very gravelly loam

Properties and Qualities of Crowcamp

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Ausmus

0 to 2 inches—light brownish gray fine sandy loam
2 to 16 inches—light brownish gray silty clay loam
16 to 29 inches—light brownish gray silt loam
29 to 69 inches—light yellowish brown loam

Properties and Qualities of Ausmus

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Poujade

0 to 4 inches—light brownish gray very fine sandy loam
4 to 6 inches—light brownish gray loam
6 to 9 inches—light brownish gray silty clay loam
9 to 13 inches—light yellowish brown silty clay loam
13 to 40 inches—light gray loam
40 to 58 inches—white silty clay loam and loam
58 to 65 inches—light gray fine sandy loam

Properties and Qualities of Poujade

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong

Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Lolak soils on lake plains
- Lawen soils on high lake terraces

Major Soil Limitations

Crowcamp, Ausmus, and Poujade—corrosivity
Crowcamp and Ausmus—wetness
Crowcamp—shrink-swell potential
Ausmus and Poujade—wind erosion, alkalinity
Ausmus—salinity

Use and Management

Irrigated Hayland

Crowcamp and Ausmus
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets and are seasonally ponded.

Ausmus and Poujade
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Ausmus
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, sulphur amendments are needed because of the strong alkalinity of the soil.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Poujade
- Alkali-tolerant plants are the most suitable for planting. The alkalinity of the soil should be treated with sulphur amendments if alfalfa or other crops are grown.

Livestock Grazing

Crowcamp, Ausmus, and Poujade
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Crowcamp
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Silver sagebrush resprouts after fires.

- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is good.

Ausmus and Poujade
- Maintaining adequate plant cover reduces the risk of wind erosion.
- Excess salts and sodium in the soils result in nutrient imbalances and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.

Ausmus
- As the site deteriorates, inland saltgrass and black greasewood increases and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

Poujade
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity.

69—Davey sandy loam, 0 to 8 percent slopes

Composition

Davey and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane and convex
Parent material: Alluvium
Geology: Mixed rock sources
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sandy 6-10PZ) fourwing saltbush, basin big sagebrush, needleandthread, Indian ricegrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 18 inches—grayish brown sandy loam
18 to 60 inches—light brownish gray loamy sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Enko and Oreanna soils on lake terraces
- Outerkirk soils on alluvial fans

Major Soil Limitations

Wind erosion, seepage, corrosivity

Use and Management

Irrigated Hayland

- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and fourwing saltbush, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of droughtiness.

70—Davey-Oreanna complex, 0 to 8 percent slopes

Composition

Davey and similar soils—45 percent
Oreanna and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Position on landform: Davey—convex areas with slopes of 2 to 8 percent; Oreanna—concave areas with slopes of 0 to 3 percent
Parent material: Alluvium
Geology: Mixed rock sources
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Davey—(Sandy 6-10PZ) fourwing saltbush, basin big sagebrush, needleandthread, Indian ricegrass; Oreanna—(Desert Loam 6-10PZ) shadscale, bud sagebrush, Indian ricegrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Davey

0 to 3 inches—grayish brown gravelly sandy loam
3 to 18 inches—grayish brown sandy loam
18 to 60 inches—light brownish gray loamy sand

Properties and Qualities of Davey

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid

Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Typical Profile of Oreanna

0 to 7 inches—pale brown gravelly sandy clay loam
7 to 14 inches—pale brown sandy clay loam
14 to 21 inches—pale brown gravelly sandy clay loam
21 to 43 inches—very pale brown very gravelly loamy coarse sand
43 to 50 inches—very pale brown very gravelly sandy loam
50 to 60 inches—white loamy sand

Properties and Qualities of Oreanna

Depth: 20 to 30 inches to sand and gravel and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Enko soils on lake terraces
- Outerkirk soils on alluvial fans

Major Soil Limitations

Davey and Oreanna—seepage, corrosivity
Davey—wind erosion

Use and Management

Livestock Grazing

Davey and Oreanna
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.
- The suitability for seeding is very poor because of droughtiness.

Davey
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and fourwing saltbush, Indian ricegrass, and needlegrasses decrease.

Oreanna
- As the site deteriorates, shadscale, annual forbs, and cheatgrass increase and bud sagebrush, Indian ricegrass, and bottlebrush squirreltail decrease.

71—Defenbaugh loam, 0 to 2 percent slopes

Composition

Defenbaugh and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,900 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Low Sodic Terrace 6-10PZ) black greasewood, shadscale, spiny hopsage, bottlebrush squirreltail, bud sagebrush
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 5 inches—pale brown loam
5 to 16 inches—light yellowish brown clay loam
16 to 29 inches—yellowish brown clay loam
29 to 47 inches—light yellowish brown very fine sandy loam
47 to 53 inches—yellowish brown sandy loam
53 to 62 inches—light yellowish brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Davey soils on lake terraces
- Droval soils on lake plains
- Outerkirk soils on alluvial fans

Major Soil Limitations

Salinity, corrosivity

Use and Management

Livestock Grazing

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale, black greasewood, and bottlebrush squirreltail increase and bud sagebrush, basin wildrye, and beardless wildrye decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.
- The suitability for seeding is very poor because of droughtiness.

72—Deppy very gravelly loam, 5 to 15 percent slopes

Composition

Deppy and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Old lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Desert Loam 6-10PZ) shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 6 inches—very pale brown very gravelly loam
6 to 15 inches—very pale brown clay loam
15 to 21 inches—strongly cemented duripan
21 to 28 inches—pale brown very gravelly sandy loam
28 to 47 inches—light yellowish brown gravelly sandy loam
47 to 60 inches—very pale brown gravelly sandy loam

Soil Properties and Qualities

Depth: 10 to 20 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Rock outcrop
- Tumtum soils on old lake terraces
- Davey soils on young lake terraces
- Atlow soils on hills

Major Soil Limitations

Seepage, depth to a hardpan, available water capacity, corrosivity

Use and Management

Livestock Grazing

- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- The risk of seepage limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This unit is suited to grazing in winter.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale, annual forbs, and cheatgrass increase and bud sagebrush, Indian ricegrass, and bottlebrush squirreltail decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is poor because of the low available water capacity.

73—Deppy-Tumtum complex, 5 to 15 percent slopes

Composition

Deppy and similar soils—45 percent
Tumtum and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Old lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Deppy—(Desert Loam 6-10PZ) shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail; Tumtum—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Deppy

0 to 6 inches—very pale brown very cobbly loam
6 to 15 inches—very pale brown clay loam
15 to 21 inches—strongly cemented duripan
21 to 28 inches—pale brown very gravelly sandy loam
28 to 47 inches—light yellowish brown gravelly sandy loam
47 to 60 inches—very pale brown gravelly sandy loam

Properties and Qualities of Deppy

Depth: 10 to 20 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Tumtum

0 to 2 inches—light brownish gray cobbly loam
2 to 12 inches—yellowish brown clay loam
12 to 25 inches—indurated duripan
25 to 60 inches—light yellowish brown gravelly sandy loam

Properties and Qualities of Tumtum

Depth: 9 to 18 inches to a hardpan and more than 60 inches to bedrock

Drainage class: Well drained
Permeability: Slow over rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Enko soils on lake terraces
- Atlow and Skedaddle soils on hills

Major Soil Limitations

Deppy and Tumtum—seepage, depth to a hardpan, available water capacity, corrosivity

Use and Management

Livestock Grazing

Deppy and Tumtum
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- The risk of seepage limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- A well-developed erosion pavement can limit the reestablishment of plants.
- This unit is suited to grazing in winter.

Deppy
- As the site deteriorates, shadscale, annual forbs, and cheatgrass increase and bud sagebrush, Indian ricegrass, and bottlebrush squirreltail decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Tumtum
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

74—Dickle very cobbly clay loam, 3 to 12 percent slopes

Composition

Dickle and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, rhyolite, and welded tuff

Elevation: 6,000 to 7,800 feet
Rangeland ecological site and characteristic vegetation: (Claypan 16-25PZ) low sagebrush, Idaho fescue, onespike oatgrass
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 6 inches—grayish brown clay loam
6 to 14 inches—brown clay loam
14 inches—basalt

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Baconcamp soils on side slopes
- Welch soils along drainageways
- Hackwood soils in depressions
- Rock outcrop

Major Soil Limitations

Depth to bedrock, cold climate, available water capacity, surface rock fragments

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and fescue and onespike oatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity, surface rock fragments, depth to bedrock, and short growing season.

75—Dixon gravelly fine sandy loam, 0 to 5 percent slopes

Composition

Dixon and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane and convex
Parent material: Alluvium
Geology: Tuffaceous sedimentary rock and mixed igneous rock
Elevation: 4,400 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ)
Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—pale brown gravelly fine sandy loam
2 to 8 inches—light yellowish brown clay loam
8 to 18 inches—light yellowish brown gravelly sandy clay loam
18 to 35 inches—pale brown sandy clay loam
35 to 46 inches—light yellowish brown very gravelly loamy sand
46 to 60 inches—very pale brown very gravelly sandy loam

Soil Properties and Qualities

Depth: 30 to 40 inches to sand and gravel and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Catlow soils on lake terraces
- Ozamis soil on lake plains

Major Soil Limitations

Seepage, wind erosion, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits construction of water impoundments.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

76—Dixon gravelly fine sandy loam, alkali, 0 to 2 percent slopes

Composition

Dixon and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Dry Sodic Floodplain)
black greasewood, basin big sagebrush, inland saltgrass, basin wildrye
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—pale brown gravelly fine sandy loam
2 to 8 inches—light yellowish brown clay loam
8 to 18 inches—light yellowish brown gravelly sandy clay loam
18 to 35 inches—pale brown sandy clay loam
35 to 46 inches—light yellowish brown very gravelly loamy sand
46 to 60 inches—very pale brown very gravelly sandy loam

Soil Properties and Qualities

Depth: 30 to 40 inches to sand and gravel and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Droval soils on lake plains
- Rio King soils on lake terraces

Major Soil Limitations

Seepage, wind erosion, corrosivity, alkalinity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.

- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, rabbitbrush, and bottlebrush squirreltail increase and inland saltgrass and basin wildrye decrease.
- The suitability for seeding is poor because of the strong alkalinity.

77—Dixon gravelly sandy clay loam, 3 to 15 percent slopes

Composition

Dixon and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces (fig. 2)
Slope features: Plane and convex
Parent material: Alluvium
Geology: Mixed igneous rock

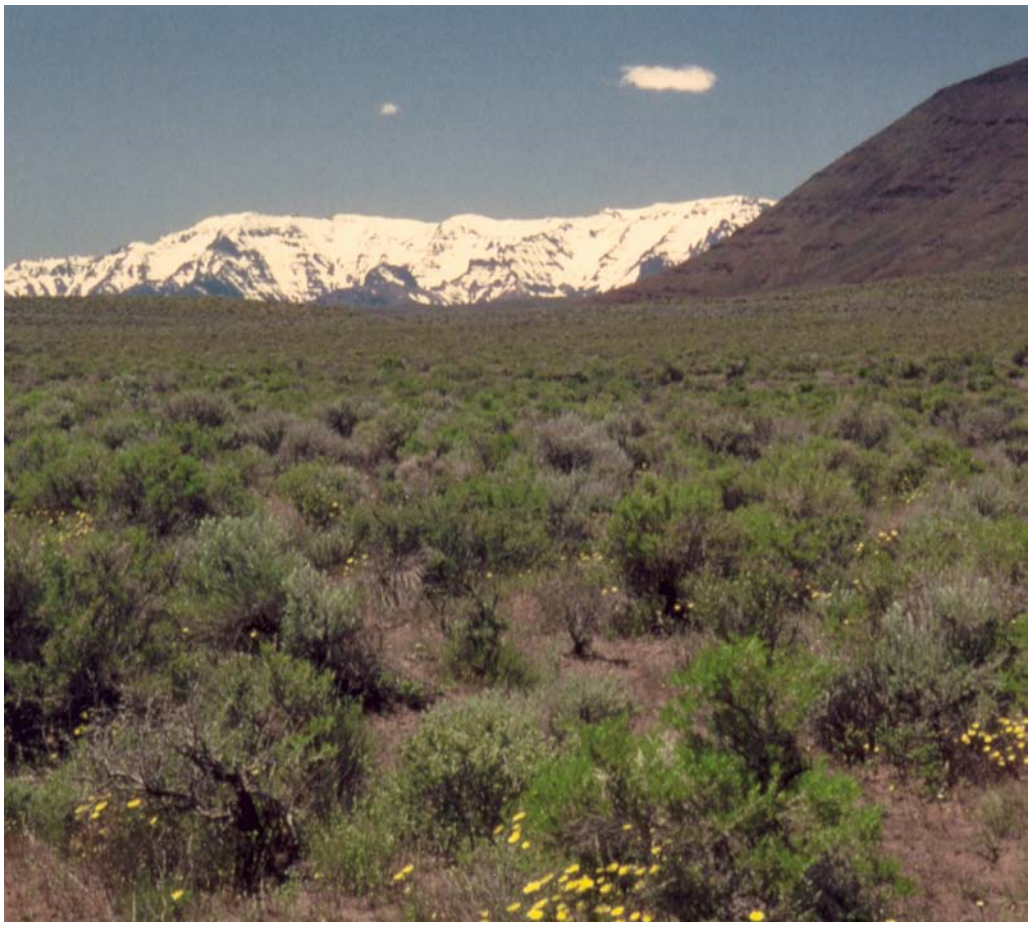


Figure 2.—Area of Dixon gravelly sandy clay loam, 3 to 15 percent slopes, in foreground. Skedaddle-Rock outcrop complex, 40 to 70 percent slopes, on escarpment. Steens Mountain in background.

Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Fan 6-10PZ) basin big sagebrush, black greasewood, Indian ricegrass, basin wildrye
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—pale brown gravelly sandy clay loam
2 to 8 inches—light yellowish brown clay loam
8 to 18 inches—light yellowish brown gravelly sandy clay loam
18 to 35 inches—pale brown sandy clay loam
35 to 46 inches—light yellowish brown very gravelly loamy sand
46 to 60 inches—very pale brown very gravelly sandy loam

Soil Properties and Qualities

Depth: 30 to 40 inches to sand and gravel and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Moderate
Corrosivity to steel: High

Contrasting Inclusions

- Droval soils on intermediate stream terraces
- Rio King soils on high stream terraces
- Ozamis soils on low stream terraces
- Wet soils in drainageways of fan terraces

Major Soil Limitations

Water erosion, seepage, corrosivity

Use and Management

Livestock Grazing

- The construction of waterbars prevents gullying on roads, trails, and pipelines.
- The risk of seepage limits the construction of water impoundments.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, black greasewood, and bottlebrush squirreltail increase and basin wildrye and Indian ricegrass decrease.
- The suitability for seeding is poor because of droughtiness.

78—Dixon-Droval complex, 0 to 2 percent slopes

Composition

Dixon and similar soils—50 percent
Droval and similar soils—40 percent
Contrasting inclusions—10 percent

Setting

Landform: Dixon—lake terraces; Droval—lake plains
Slope features: Plane
Parent material: Dixon—alluvium; Droval—lacustrine sediment
Geology: Mixed igneous rock
Elevation: 4,100 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Dixon—(Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye; Droval—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Dixon

0 to 2 inches—pale brown gravelly sandy clay loam
2 to 8 inches—light yellowish brown clay loam
8 to 18 inches—light yellowish brown gravelly sandy clay loam
18 to 35 inches—pale brown sandy clay loam
35 to 46 inches—light yellowish brown very gravelly loamy sand
46 to 60 inches—very pale brown very gravelly sandy loam

Properties and Qualities of Dixon

Depth: 30 to 40 inches to sand and gravel and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Droval

0 to 4 inches—light brownish gray loam
4 to 11 inches—grayish brown silty clay
11 to 22 inches—light brownish gray silty clay
22 to 32 inches—grayish brown clay
32 to 46 inches—pale brown silty clay
46 to 61 inches—pale brown clay
61 inches—highly fractured lacustrine sediment

Properties and Qualities of Droval

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong

Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Rio King, Deppy, and Leathers soils on lake terraces
- Ozamis soils on lake plains

Major Soil Limitations

Dixon and Droval—alkalinity, corrosivity
Dixon—seepage
Droval—wetness, shrink-swell potential, salinity

Use and Management

Irrigated Hayland

Dixon
- The alkalinity limits the types of crops that can be grown.
- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to this soil.

Droval
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, sulphur amendments are needed because of the strong alkalinity of the soil.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

Dixon and Droval
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Dixon
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is poor because of droughtiness and the strong alkalinity.

Droval
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Crusting of the soil surface reduces infiltration, causes ponding, and restricts seedling emergence and survival.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- The surface of the soil becomes highly sodic with continued deterioration of the site.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.

- The suitability for seeding is very poor because of the strong alkalinity and salinity.

79—Dogmountain gravelly loam, 4 to 20 percent slopes

Composition

Dogmountain and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Ash and cinders
Geology: Volcanic ejecta
Elevation: 4,150 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—brown gravelly loam
3 to 9 inches—pale brown gravelly loam
9 to 12 inches—light gray very gravelly loam
12 to 21 inches—very pale brown extremely gravelly loam
21 to 30 inches—indurated duripan
30 to 60 inches—black gravel-sized cinders

Soil Properties and Qualities

Depth: 20 to 30 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate above the duripan and very rapid below it
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Reallis soils on lake terraces
- Wolverine soils on sand dunes
- Middlebox soils on hills

Major Soil Limitations

Depth to hardpan, seepage, water erosion, corrosivity

Use and Management

Livestock Grazing and Irrigated Hayland

- Depth to the hardpan and the risk of seepage limit the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity of the surface layer.

80—Doyn very stony loam, 2 to 20 percent slopes

Composition

Doyn and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, welded tuff, rhyolite, and andesite
Elevation: 3,900 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Very Shallow 12-16PZ) stiff sagebrush, onespike oatgrass, Sandberg bluegrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—brown very stony loam
2 to 8 inches—brown cobbly loam
8 inches—basalt

Soil Properties and Qualities

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Ateron and Merlin soils on plateaus
- Modoc soils on alluvial fans
- Rock outcrop

Major Soil Limitations

Surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- This unit commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.

- The suitability for seeding is very poor because of the low available water capacity, surface stones, and depth to bedrock.

81—Doyn-Merlin complex, 2 to 20 percent slopes

Composition

Doyn and similar soils—60 percent
Merlin and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Doyn—(SR Mountain Very Shallow 12-16PZ) stiff sagebrush, onespike oatgrass, Sandberg bluegrass, Idaho fescue; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Doyn

0 to 2 inches—brown very stony loam
2 to 8 inches—brown cobbly loam
8 inches—basalt

Properties and Qualities of Doyn

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Merlin

0 to 7 inches—brown very cobbly clay loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Teguro, Ticino, and Vitale soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Doyn and Merlin—available water capacity, depth to bedrock
Doyn—surface stones
Merlin—depth to a claypan, shrink-swell potential, surface rock fragments

Use and Management

Livestock Grazing

Doyn and Merlin
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

Doyn
- The very stony surface layer restricts the operation of ground seeding equipment.
- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- The suitability for seeding is very poor because of .the low available water capacity, surface stones, and depth to bedrock.

Merlin
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- If this soil is disturbed or in a deteriorated condition, it is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to a claypan, and surface rock fragments.

82—Doyn-Arcia association, 2 to 30 percent slopes

Composition

Doyn and similar soils—60 percent
Arcia and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Position on landform: Doyn—convex side slopes; Arcia—concave side slopes
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,000 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Doyn—(SR Mountain Very Shallow 12-16PZ) stiff sagebrush, onespike oatgrass, Sandberg bluegrass, Idaho fescue; Arcia—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Doyn

0 to 2 inches—brown very stony loam
2 to 8 inches—brown cobbly loam
8 inches—basalt

Properties and Qualities of Doyn

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Arcia

0 to 4 inches—grayish brown extremely stony loam
4 to 13 inches—grayish brown very gravelly loam
13 to 23 inches—brown gravelly clay
23 inches—basalt

Properties and Qualities of Arcia

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Merlin soils on plateaus and hills
- Teguro soils on hills
- Westbutte soils on north-facing slopes of hills
- Rock outcrop

Major Soil Limitations

Doyn and Arcia—available water capacity, surface stones, depth to bedrock
Arcia—shrink-swell potential

Use and Management

Livestock Grazing

Doyn and Arcia
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- The suitability for seeding is very poor because of the low available water capacity, surface stones, and depth to bedrock.
- The surface stones restrict the operation of ground seeding equipment, movement of livestock, and distribution of grazing.

Doyn
- Special design is needed for fences because the very shallow soil depth limits the placement of fence posts.

- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.

Arcia
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- If the soil is disturbed or in a deteriorated condition, it is susceptible to invasion by medusahead.

83—Drewsey very fine sandy loam, 1 to 5 percent slopes

Composition

Drewsey and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave to convex
Parent material: Colluvium and eolian material
Geology: Tuffaceous sedimentary rock
Elevation: 3,500 to 4,000 feet
Rangeland ecological site and characteristic vegetation: (SR Loamy 9-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—brown very fine sandy loam
3 to 14 inches—light yellowish brown loam
14 to 62 inches—light yellowish brown and pale brown fine sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- Poall soils on hills
- Legler soils on stream terraces

Major Soil Limitations

Corrosivity, wind erosion

Use and Management

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

84—Drewsey very fine sandy loam, 2 to 20 percent slopes

Composition

Drewsey and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave to convex
Parent material: Colluvium and eolian material
Geology: Tuffaceous sedimentary rock
Elevation: 3,500 to 4,000 feet
Rangeland ecological site and characteristic vegetation: (SR Loamy 9-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—brown very fine sandy loam
3 to 14 inches—light yellowish brown loam
14 to 62 inches—light yellowish brown and pale brown fine sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- Risley and Gumble soils and Torriorthents on hills
- Rock outcrop

Major Soil Limitations

Corrosivity, water erosion, wind erosion

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

85—Drewsey-Torriorthents-Gumble complex, 2 to 40 percent slopes

Composition

Drewsey and similar soils—35 percent
Torriorthents and similar soils—30 percent
Gumble and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Drewsey—foot slopes of 2 to 20 percent; Torriorthents—ridges and side slopes of 2 to 40 percent; Gumble—ridges with slopes of 2 to 20 percent
Parent material: Drewsey—colluvium and eolian material; Torriorthents and Gumble—residuum and colluvium
Geology: Tuffaceous sedimentary rock
Elevation: 3,400 to 4,000 feet
Rangeland ecological site and characteristic vegetation: Drewsey—(SR Loamy 9-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Torriorthents—(SR Shallow Escarpment 9-12PZ) Wyoming big sagebrush, squaw apple, bluebunch wheatgrass, Thurber needlegrass; Gumble—(SR Shallow 9-12PZ) bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Drewsey

0 to 3 inches—brown very cobbly sandy loam
3 to 14 inches—light yellowish brown loam
14 to 62 inches—light yellowish brown and pale brown fine sandy loam

Properties and Qualities of Drewsey

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 9 inches
Hazard of erosion: Water—moderate; wind—slight
Corrosivity to steel: High

Reference Profile of Torriorthents

0 to 7 inches—light brownish gray very gravelly sandy loam
7 inches—tuffaceous sedimentary rock

Properties and Qualities of Torriorthents

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Gumble

0 to 3 inches—pale brown very cobbly loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Properties and Qualities of Gumble

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Risley soils on hills
- Bucklake soils on north-facing hillslopes
- Rock outcrop

Major Soil Limitations

Drewsey, Torriorthents, and Gumble—water erosion
Torriorthents and Gumble—available water capacity, depth to bedrock
Drewsey and Gumble—corrosivity, surface rock fragments
Gumble—shrink-swell potential

Use and Management

Livestock Grazing

Drewsey, Torriorthents, and Gumble
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Torriorthents and Gumble
- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.

Drewsey
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the surface rock fragments.

Torriorthents
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- These soils are susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

Gumble
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

86—Droval loam, 0 to 3 percent slopes

Composition

Droval and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 4 inches—light brownish gray loam
4 to 11 inches—grayish brown silty clay
11 to 22 inches—light brownish gray silty clay
22 to 32 inches—grayish brown clay
32 to 46 inches—pale brown silty clay
46 to 61 inches—pale brown clay
61 inches—highly fractured lacustrine sediment

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High

Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Alvodest soils on lake plains
- Rio King soils on lake terraces
- Goldrun soils on sand dunes
- Playas

Major Soil Limitations

Wetness, shrink-swell potential, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing provides habitat for migratory waterfowl.
- Crusting of the soil surface reduces infiltration, causes ponding, and restricts seedling emergence and survival.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- The surface of the soil becomes highly sodic with continued deterioration of the site.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

87—Duff loam, 3 to 12 percent slopes

Composition

Duff and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave
Parent material: Colluvium and loess
Geology: Basalt and andesite
Elevation: 6,100 to 8,300 feet
Rangeland ecological site and characteristic vegetation: (Swale 12-16PZ) mountain big sagebrush, whortleleaf snowberry, basin wildrye
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile

0 to 24 inches—very dark grayish brown loam

24 to 43 inches—dark brown very gravelly loam
43 inches—fractured basalt

Soil Properties and Qualities

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Hackwood soils in swales of mountains
- Welch soils in drainageways of mountains
- Baconcamp soils on mountains
- Rock outcrop

Major Soil Limitation

Cold climate

Use and Management

Livestock Grazing

- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, rabbitbrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue, skyline bluegrass, and basin wildrye decrease.
- As the streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production.
- The suitability for seeding is fair because of the short growing season.

88—Duff-Clamp complex, 5 to 20 percent slopes

Composition

Duff and similar soils—45 percent
Clamp and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 6,100 to 7,300 feet
Rangeland ecological site and characteristic vegetation: Duff—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass; Clamp—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 20 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Duff

0 to 24 inches—very dark grayish brown loam
24 to 43 inches—dark brown very gravelly loam
43 inches—fractured basalt

Properties and Qualities of Duff

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Clamp

0 to 3 inches—grayish brown cobbly clay loam
3 to 12 inches—grayish brown very cobbly clay loam
12 inches—fractured basalt

Properties and Qualities of Clamp

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Baconcamp soils on north- and south-facing hillsides
- Welch soils in drainageways of mountains
- Hackwood soils in swales of mountains
- Rock outcrop

Major Soil Limitations

Duff and Clamp—cold climate
Clamp—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Duff and Clamp

- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Duff

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the short growing season.

Clamp

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.

- The suitability for seeding is very poor because of the low available water capacity and the short growing season.

89—Duff-Clamp complex, 20 to 40 percent north slopes

Composition

Duff and similar soils—45 percent
Clamp and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 6,100 to 7,300 feet
Rangeland ecological site and characteristic vegetation: Duff—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Clamp—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 20 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Duff

0 to 24 inches—very dark grayish brown loam
24 to 43 inches—dark brown very gravelly loam
43 inches—fractured basalt

Properties and Qualities of Duff

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Clamp

0 to 3 inches—grayish brown cobbly clay loam
3 to 12 inches—grayish brown very cobbly clay loam
12 inches—fractured basalt

Properties and Qualities of Clamp

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Baconcamp soils on side slopes
- Welch soils in drainageways
- Pearlwise soils on ridges
- Rock outcrop

Major Soil Limitations

Duff and Clamp—water erosion, cold climate, slope
Clamp—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Duff and Clamp
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Duff
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the short growing season and steepness of slope.

Clamp
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity, short growing season, and steepness of slope.

90—Duff-Hackwood complex, 2 to 30 percent slopes

Composition

Duff and similar soils—60 percent
Hackwood and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave
Parent material: Colluvium and loess
Geology: Basalt
Elevation: 6,000 to 8,300 feet
Rangeland ecological site and characteristic vegetation: Duff—(Swale 12-16PZ) mountain big sagebrush, whortleleaf snowberry, basin wildrye; Hackwood—(Aspen 16-35PZ) quaking aspen, whortleleaf snowberry, sedge
Climatic factors:
Mean annual precipitation—14 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Duff

0 to 24 inches—very dark grayish brown loam

24 to 43 inches—dark brown very gravelly loam
43 inches—fractured basalt

Properties and Qualities of Duff

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Hackwood

0 to 11 inches—brown very gravelly loam
11 to 23 inches—brown loam
23 to 48 inches—brown gravelly loam
48 to 60 inches—light yellowish brown gravelly loam

Properties and Qualities of Hackwood

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Clamp soils on side slopes
- Leemorris soils on south-facing side slopes
- Welch soils in drainageways
- Rock outcrop

Major Soil Limitation

Duff and Hackwood—cold climate

Use and Management

Livestock Grazing

Duff and Hackwood
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is fair because of the short growing season.

Duff
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, rabbitbrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue, skyline bluegrass, and basin wildrye decrease.

Hackwood
- Excessive use of aspen reduces its productivity and potential for regeneration.
- As the site deteriorates, shrubs and forbs increase and needlegrasses decrease.

91—Edemaps loam, 5 to 20 percent slopes

Composition

Edemaps and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Plane and convex
Parent material: Old alluvium and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—grayish brown loam
7 to 10 inches—dark brown clay
10 to 18 inches—brown clay
18 to 25 inches—yellowish brown very cobbly clay loam
25 to 30 inches—indurated duripan
30 inches—fractured basalt

Soil Properties and Qualities

Depth: 20 to 35 inches to a duripan and 24 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Brace and Ninemile soils on hills and plateaus
- Carvix soils on stream terraces
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a hardpan, shrink-swell potential

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

92—Edemaps-Carryback association, 2 to 10 percent slopes

Composition

Edemaps and similar soils—45 percent

Carryback and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Edemaps—plane; Carryback—convex
Parent material: Residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,700 to 5,700 feet
Rangeland ecological site and characteristic vegetation: Edemaps—(Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass; Carryback—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Edemaps

0 to 7 inches—grayish brown cobbly clay loam
7 to 10 inches—dark brown clay
10 to 18 inches—brown clay
18 to 25 inches—yellowish brown very cobbly clay loam
25 to 30 inches—indurated duripan
30 inches—fractured basalt

Properties and Qualities of Edemaps

Depth: 20 to 35 inches to a duripan and 24 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Carryback

0 to 7 inches—pale brown cobbly clay loam
7 to 24 inches—brown clay
24 inches—basalt

Properties and Qualities of Carryback

Depth: 2 to 7 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Fourwheel soils on hills
- Carvix soils on stream terraces
- Brace soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Edemaps and Carryback—depth to bedrock, shrink-swell potential
Edemaps—depth to a hardpan
Carryback—depth to a claypan

Use and Management

Livestock Grazing

Edemaps and Carryback
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.

Edemaps
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

Carryback
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the depth to the claypan.

93—Enko loamy sand, 2 to 8 percent slopes

Composition

Enko and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 8-10PZ) basin big sagebrush, needleandthread, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 8 inches—brown loamy sand
8 to 19 inches—brown sandy loam
19 to 29 inches—yellowish brown sandy loam
29 to 45 inches—light yellowish brown sandy loam
45 to 62 inches—very pale brown gravelly loamy sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- McConnel and Davey soils on lake terraces
- Outerkirk soils on alluvial fans

Major Soil Limitations

Available water capacity, corrosivity, wind erosion, seepage

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and Sandberg bluegrass increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness and the low available water capacity.

Irrigated Hayland

- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to this soil.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

94—Enko-Catlow complex, 1 to 7 percent slopes

Composition

Enko and similar soils—50 percent
Catlow and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,400 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Enko—(Sandy Loam 8-10PZ) basin big sagebrush, needleandthread, Indian ricegrass; Catlow—(Loamy 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass

Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Enko

0 to 8 inches—brown loamy sand
8 to 19 inches—brown sandy loam
19 to 29 inches—yellowish brown sandy loam
29 to 45 inches—light yellowish brown sandy loam
45 to 62 inches—very pale brown gravelly loamy sand

Properties and Qualities of Enko

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—severe
Corrosivity to steel: High

Typical Profile of Catlow

0 to 3 inches—pale brown gravelly loam
3 to 9 inches—brown very gravelly sandy clay loam
9 to 22 inches—pale brown very gravelly sandy clay loam
22 to 31 inches—pale brown extremely gravelly sandy loam
31 to 60 inches—multicolored extremely gravelly sand

Properties and Qualities of Catlow

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Berdugo, Spangenburg, and Norad soils on lake terraces

Major Soil Limitations

Enko and Catlow—seepage, corrosivity
Enko—wind erosion, sandy surface layer
Catlow—available water capacity

Use and Management

Livestock Grazing

Enko and Catlow
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.

Enko
- The low available water capacity of the sandy surface layer limits seedling survival.

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and Sandberg bluegrass increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

Catlow

- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of droughtiness and the low available water capacity.

Irrigated Hayland

Enko and Catlow

- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to the soils in this unit.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

95—Enko-Catlow complex, 7 to 15 percent slopes

Composition

Enko and similar soils—50 percent
Catlow and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,400 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Enko—(Sandy Loam 8-10PZ) basin big sagebrush, needleandthread, Indian ricegrass; Catlow—(Loamy 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Enko

0 to 8 inches—brown loamy sand
8 to 19 inches—brown sandy loam
19 to 29 inches—yellowish brown sandy loam
29 to 45 inches—light yellowish brown sandy loam
45 to 62 inches—very pale brown gravelly loamy sand

Properties and Qualities of Enko

Depth: More than 60 inches to bedrock
Drainage class: Well drained

Permeability: Slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Typical Profile of Catlow

0 to 3 inches—pale brown gravelly loam
3 to 9 inches—brown very gravelly sandy clay loam
9 to 22 inches—pale brown very gravelly sandy clay loam
22 to 31 inches—pale brown extremely gravelly sandy loam
31 to 60 inches—multicolored extremely gravelly sand

Properties and Qualities of Catlow

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Berdugo, Spangenburg, and Norad soils on lake terraces

Major Soil Limitations

Enko and Catlow—seepage, corrosivity, water erosion
Enko—wind erosion, sandy surface layer
Catlow—available water capacity

Use and Management

Livestock Grazing

Enko and Catlow
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.

Enko
- The low available water capacity of the sandy surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and Sandberg bluegrass increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

Catlow
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of droughtiness and the low available water capacity.

96—Enko-Catlow association, 2 to 20 percent slopes

Composition

Enko and similar soils—50 percent
Catlow and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Position on landform: Enko—slopes of 2 to 8 percent; Catlow—slopes of 5 to 20 percent
Parent material: Enko—alluvium; Catlow—colluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Enko—(Sandy Loam 8-10PZ) basin big sagebrush, needleandthread, Indian ricegrass; Catlow—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Enko

0 to 8 inches—brown loamy sand
8 to 19 inches—brown sandy loam
19 to 29 inches—yellowish brown sandy loam
29 to 45 inches—light yellowish brown sandy loam
45 to 62 inches—very pale brown gravelly loamy sand

Properties and Qualities of Enko

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Typical Profile of Catlow

0 to 3 inches—pale brown very stony loam
3 to 9 inches—brown very stony sandy clay loam
9 to 22 inches—pale brown extremely stony sandy clay loam
22 to 31 inches—pale brown extremely cobbly loamy coarse sand
31 to 60 inches—multicolored extremely cobbly coarse sand

Properties and Qualities of Catlow

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- McConnel soils on lake terraces
- Wolverine soils on sand dunes
- Rock outcrop

Major Soil Limitations

Enko and Catlow—water erosion, seepage, corrosivity
Enko—wind erosion, sandy surface layer
Catlow—surface stones, available water capacity

Use and Management

Livestock Grazing

Enko and Catlow
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.

Enko
- The low available water capacity of the sandy surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and Sandberg bluegrass increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

Catlow
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of droughtiness, the low available water capacity, and surface rock fragments.

97—Erakatak extremely stony silty clay loam, 50 to 80 percent north slopes

Composition

Erakatak and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 5,000 to 6,200 feet
Rangeland ecological site and characteristic vegetation: (North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches

Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—grayish brown and brown extremely stony silty clay loam
7 to 16 inches—brown very cobbly clay loam
16 to 25 inches—light yellowish brown very cobbly clay
25 inches—fractured welded tuff

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Ninemile soils on convex side slopes
- Welch soils in drainageways
- Pernty soils on south-facing side slopes
- Rock outcrop

Major Soil Limitations

Available water capacity, water erosion, slope, surface stones, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and the extremely stony surface layer prohibit the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the depth to bedrock, surface stones, steepness of slope, and low available water capacity.

98—Erakatak-Lambring-Rock outcrop complex, 20 to 60 percent north slopes

Composition

Erakatak and similar soils—40 percent
Lambring and similar soils—35 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains and hills
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 5,600 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Erakatak—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Lambring—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Erakatak

0 to 7 inches—grayish brown and brown very cobbly loam
7 to 16 inches—brown very cobbly clay loam
16 to 25 inches—light yellowish brown very cobbly clay
25 inches—fractured welded tuff

Properties and Qualities of Erakatak

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very gravelly loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Ninemile soils on convex side slopes
- Westbutte soils on side slopes

Major Soil Limitations

Erakatak and Lambring—water erosion, slope
Erakatak—depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

Erakatak and Lambring
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.

- Steepness of slope restricts the operation of ground seeding equipment.
- The suitability for seeding is very poor because of the steepness of slope.

Erakatak
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.

Lambring
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

99—Erakatak-Merlin-Westbutte complex, 10 to 60 percent slopes

Composition

Erakatak and similar soils—35 percent
Merlin and similar soils—30 percent
Westbutte and similar soils—25 percent
Contrasting soils—10 percent

Setting

Landform: Hills
Position on landform: Erakatak—north- and east-facing side slopes of 20 to 60 percent; Merlin—side slopes of 10 to 30 percent; Westbutte—south- and west-facing side slopes of 20 to 60 percent
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,400 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Erakatak—(SR Mountain North 12-16PZ) mountain big sagebrush, Idaho fescue; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Westbutte—(SR Mountain South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Erakatak

0 to 7 inches—grayish brown and brown very cobbly loam
7 to 16 inches—brown very cobbly clay loam
16 to 25 inches—light yellowish brown very cobbly clay
25 inches—fractured welded tuff

Properties and Qualities of Erakatak

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Merlin

0 to 7 inches—brown very stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Anatone, Doyn, and Gaib soils on hills
- Rock outcrop
- Lambring soils on north- and west-facing hillsides
- Vitale soils on south- and west-facing hillsides

Major Soil Limitations

Erakatak, Merlin, and Westbutte—depth to bedrock
Erakatak and Merlin—shrink-swell potential
Merlin and Westbutte—surface stones
Erakatak and Westbutte—slope, water erosion
Merlin—depth to a claypan, available water capacity

Use and Management

Livestock Grazing

Erakatak, Merlin, and Westbutte
- This unit is susceptible to invasion by western juniper.

Erakatak and Merlin
- These heavy-textured soils expand when wet and contract when dry, which may damage structures.

Merlin and Westbutte
- The very stony surface layer restricts the operation of ground seeding equipment.

Erakatak and Westbutte
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.

Erakatak
- Steepness of slope restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the steepness of slope.

Merlin
- The bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drained adequately before grazing to prevent compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- If the site is disturbed or in a deteriorated condition, it is susceptible to invasion by medusahead.
- The suitability for seeding is very poor because of the surface rock fragments and low available water capacity.

Westbutte
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- If the site is disturbed or in a deteriorated condition, it is susceptible to invasion by medusahead.
- The suitability for seeding is very poor because of the surface rock fragments and steepness of slope.

100—Erakatak-Rock outcrop complex, 20 to 60 percent slopes

Composition

Erakatak and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 5,300 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Erakatak—(Juniper South Slopes 12-16PZ) western juniper, mountain big sagebrush, bluebunch wheatgrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Erakatak

0 to 7 inches—grayish brown and brown very stony clay loam
7 to 16 inches—pale brown very cobbly clay loam
16 to 25 inches—light yellowish brown very cobbly clay
25 inches—fractured welded tuff

Properties and Qualities of Erakatak

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Ninemile and Westbutte soils on north- and east-facing hillsides

Major Soil Limitations

Water erosion, slope, surface stones, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope, surface stones, and the areas of Rock outcrop restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the steepness of slope, depth to bedrock, surface stones, and areas of Rock outcrop.

101—Erakatak-Ninemile-Hapgood association, 5 to 40 percent slopes

Composition

Erakatak and similar soils—35 percent
Ninemile and similar soils—30 percent
Hapgood and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains and hills
Position on landform: Erakatak—south- and west-facing side slopes of 25 to 40 percent at the higher elevations; Ninemile—south- and west-facing side slopes of 5 to 30 percent at the lower elevations; Hapgood—north- and east-facing side slopes of 25 to 40 percent
Parent material: Erakatak and Ninemile—colluvium and residuum; Hapgood—colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,600 to 7,500 feet

Rangeland ecological site and characteristic vegetation: Erakatak—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass; Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Hapgood—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue

Climatic factors:

Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—30 to 80 days

Typical Profile of Erakatak

0 to 7 inches—grayish brown very stony clay loam
7 to 16 inches—pale brown very cobbly clay loam
16 to 25 inches—light yellowish brown very cobbly clay
25 inches—fractured welded tuff

Properties and Qualities of Erakatak

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Hapgood

0 to 10 inches—dark gray very cobbly loam
10 to 43 inches—dark grayish brown very stony loam
43 inches—basalt

Properties and Qualities of Hapgood

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Baconcamp and Duff soils on south- and west-facing mountainsides and hillsides at higher elevations

- Pearlwise soils on south- and west-facing mountainsides and hillsides at lower elevations
- Welch soils in drainageways and on stream terraces
- Rock outcrop

Major Soil Limitations

Erakatak and Hapgood—water erosion
Erakatak and Ninemile—depth to bedrock, shrink-swell potential, available water capacity
Erakatak—surface stones
Ninemile—depth to a claypan, surface rock fragments
Hapgood—cold climate, surface rock fragments

Use and Management

Livestock Grazing

Erakatak and Hapgood
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Erakatak and Ninemile
- These heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Erakatak
- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Ninemile
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Hapgood
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the surface rock fragments and short growing season.

102—Felcher extremely stony clay loam, 20 to 40 percent south slopes

Composition

Felcher and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,800 to 7,100 feet
Rangeland ecological site and characteristic vegetation: (South Slopes 8-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 10 inches—light brownish gray extremely stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Riddleranch soils on lower lying, south-facing mountainsides
- Anawalt soils on convex, south-facing hillsides
- Rock outcrop

Major Soil Limitations

Available water capacity, water erosion, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The extremely stony surface layer prohibits the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- Depth to bedrock limits the construction of water impoundments.

- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the surface stones.

103—Felcher-Rock outcrop complex, 40 to 70 percent south slopes

Composition

Felcher and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,100 to 7,100 feet
Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—80 to 100 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—igneous rock

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Sagehen soils on south- and west-facing mountainsides and hillsides
- Westbutte soils on north- and east-facing mountainsides and hillsides
- Robson soils on south- and west-facing hillsides

Major Soil Limitations

Available water capacity, water erosion, slope, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.

- Depth to bedrock limits the construction of water impoundments.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the steepness of slope.

104—Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes

Composition

Felcher and similar soils—35 percent
Rock outcrop—30 percent
Brezniak and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Felcher and Brezniak—residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,700 to 6,800 feet
Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Brezniak—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—80 to 100 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray extremely stony sandy clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Brezniak

0 to 3 inches—brown cobbly loam
3 to 7 inches—brown clay
7 to 10 inches—reddish yellow clay
10 inches—fractured basalt

Properties and Qualities of Brezniak

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch

Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Sagehen soils on south- and west-facing mountainsides
- Westbutte soils on north- and east-facing mountainsides
- Robson soils on south- and west-facing hillsides

Major Soil Limitations

Felcher and Brezniak—water erosion, slope, depth to bedrock, available water capacity
Felcher—surface stones
Brezniak—shrink-swell potential

Use and Management

Livestock Grazing

Felcher and Brezniak
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.
- These soils are susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.

Felcher
- The low available water capacity of the surface layer limits seedling survival.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- The suitability for seeding is very poor because of the surface stones and steepness of slope.

Brezniak
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of the depth to bedrock and steepness of slope.

105—Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes

Composition

Felcher and similar soils—35 percent
Rock outcrop—30 percent
Westbutte and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains

Position on landform: Felcher—south- and west-facing side slopes; Rock outcrop—side slopes; Westbutte—north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,800 to 7,000 feet
Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Westbutte—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 100 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very cobbly loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Robson and Sagehen soils on south- and west-facing mountainsides

Major Soil Limitations

Felcher and Westbutte—water erosion, available water capacity, depth to bedrock
Felcher—surface rock fragments
Westbutte—surface stones

Use and Management

Livestock Grazing

Felcher and Westbutte
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.

Felcher
- This soil is susceptible to invasion by cheatgrass and medusahead.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Westbutte
- The extremely stony surface layer prohibits the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the surface stones and low available water capacity.

106—Felcher-Sagehen complex, 5 to 30 percent slopes

Composition

Felcher and similar soils—45 percent
Sagehen and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 4,900 to 7,100 feet
Rangeland ecological site and characteristic vegetation: Felcher—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass; Sagehen—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Sagehen

0 to 10 inches—light brownish gray stony clay loam
10 to 19 inches—brown very gravelly clay loam
19 inches—basalt

Properties and Qualities of Sagehen

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Westbutte soils on north- and east-facing mountainsides
- Rock outcrop

Major Soil Limitations

Felcher and Sagehen—depth to bedrock, surface stones, available water capacity

Use and Management

Livestock Grazing

Felcher and Sagehen
- The stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.

Felcher
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Sagehen
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

107—Felcher-Sagehen complex, 40 to 70 percent south slopes

Composition

Felcher and similar soils—45 percent
Sagehen and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 4,900 to 7,100 feet

Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Sagehen—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees
Frost-free period—50 to 80 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Typical Profile of Sagehen

0 to 10 inches—light brownish gray very stony clay loam
10 to 19 inches—brown very gravelly clay loam
19 inches—basalt

Properties and Qualities of Sagehen

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Brace soils on hills
- Westbutte soils on north- and east-facing mountainsides
- Rock outcrop

Major Soil Limitations

Felcher and Sagehen—water erosion, slope, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Felcher and Sagehen
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- The suitability for seeding is very poor because of the steepness of slope.
- These soils are susceptible to invasion by cheatgrass and medusahead.

Felcher
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.

Sagehen
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.

108—Felcher-Fitzwater-Rock outcrop association, 20 to 60 percent slopes

Composition

Felcher and similar soils—40 percent
Fitzwater and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Felcher—south- and west-facing side slopes; Fitzwater—north- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 4,100 to 5,300 feet
Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Fitzwater—(North Slopes 10-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 100 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very cobbly loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Fitzwater

0 to 9 inches—grayish brown very cobbly loam
9 to 16 inches—brown very gravelly loam

16 to 30 inches—brown extremely cobbly loam
30 to 58 inches—pale brown extremely stony sandy loam
58 inches—basalt

Properties and Qualities of Fitzwater

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Riddleranch soils on south-facing side slopes
- Carvix soils on stream terraces
- Anawalt soils on convex slopes

Major Soil Limitations

Felcher and Fitzwater—available water capacity, water erosion, slope
Felcher—depth to bedrock

Use and Management

Livestock Grazing

Felcher and Fitzwater
- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope restricts the operation of ground seeding equipment.
- The suitability for seeding is very poor because of the steepness of slope.

Felcher
- Depth to bedrock limits the construction of water impoundments.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.

Fitzwater
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

109—Felcher-Pernty-Ninemile association, 10 to 35 percent slopes

Composition

Felcher and similar soils—35 percent
Pernty and similar soils—30 percent
Ninemile and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Felcher—south- and west-facing slopes of 20 to 35 percent; Pernty—north- and east-facing slopes of 20 to 35 percent; Ninemile—slopes of 10 to 20 percent

Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,500 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Pernty—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Ninemile—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 100 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Pernty

0 to 3 inches—grayish brown cobbly loam
3 to 8 inches—grayish brown cobbly loam
8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Properties and Qualities of Pernty

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carvix soils on terraces

- Lambring soils on north-facing mountainsides
- Riddleranch soils on south-facing mountainsides
- Rock outcrop

Major Soil Limitations

Felcher, Pernty, and Ninemile—water erosion, depth to bedrock, available water capacity
Felcher—surface stones
Ninemile—depth to a claypan, shrink-swell potential, surface rock fragments

Use and Management

Livestock Grazing

Felcher, Pernty, and Ninemile
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.

Pernty and Ninemile
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.

Felcher
- The very stony surface layer restricts the operation of ground seeding equipment.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Pernty
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity.

Ninemile
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

110—Felcher-Westbutte association, 20 to 40 percent slopes

Composition

Felcher and similar soils—45 percent
Westbutte and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: Felcher—south- and west-facing side slopes; Westbutte—north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,200 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Westbutte—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 100 days

Typical Profile of Felcher

0 to 10 inches—light brownish gray very stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Anawalt and Brace soils on plateaus
- Rock outcrop

Major Soil Limitations

Felcher and Westbutte—water erosion, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Felcher and Westbutte
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.

Felcher
- The surface stones restrict the operation of ground seeding equipment.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Westbutte
- The extremely stony surface layer prohibits the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the surface stones.

111—Final silt loam, 0 to 2 percent slopes

Composition

Final and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,500 to 4,000 feet
Rangeland ecological site and characteristic vegetation: (Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 11 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—very dark grayish brown silt loam
3 to 24 inches—very dark gray and dark grayish brown clay
24 to 42 inches—very dark grayish brown clay loam
42 to 60 inches—dark grayish brown silty clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Water table: Present in spring
Permeability: Slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Loupence and Wenas soils on stream terraces
- Lambranch soils on alluvial fans

Major Soil Limitations

Salinity, alkalinity, corrosivity, shrink-swell potential

Use and Management

Livestock Grazing

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, black greasewood, foxtail barley, and inland saltgrass increase and basin wildrye decreases.
- Invasion of quackgrass, iris, and povertyweed is common on this soil.
- The suitability for seeding is very poor because of the strong alkalinity.

112—Fitzwater-Hapgood association, 20 to 40 percent slopes

Composition

Fitzwater and similar soils—45 percent
Hapgood, thick surface, and similar soils—30 percent
Hapgood, thin surface, and similar soils—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains and hills
Position on landform: Fitzwater—south- and west-facing side slopes; Hapgood, thick and thin surface—north- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 6,400 to 7,500 feet
Rangeland ecological site and characteristic vegetation: Fitzwater—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass; Hapgood, thick surface—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Hapgood, thin surface—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—30 to 80 days

Typical Profile of Fitzwater

0 to 9 inches—grayish brown very stony loam
9 to 16 inches—brown very gravelly loam
16 to 30 inches—brown extremely cobbly loam

30 to 58 inches—pale brown extremely stony sandy loam
58 inches—basalt

Properties and Qualities of Fitzwater

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Hapgood, Thick Surface

0 to 10 inches—dark gray gravelly sandy loam
10 to 43 inches—dark grayish brown very stony loam
43 inches—basalt

Properties and Qualities of Hapgood, Thick Surface

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Hapgood, Thin Surface

0 to 5 inches—dark gray extremely gravelly sandy loam
5 to 43 inches—dark grayish brown very stony loam
43 inches—basalt

Properties and Qualities of Hapgood, Thin Surface

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Clamp soils on mountainsides
- Rock outcrop and Rubble land

Major Soil Limitations

Fitzwater and Hapgood, thick and thin surface—water erosion
Fitzwater and Hapgood, thin surface—available water capacity
Fitzwater—surface stones
Hapgood, thick surface and thin surface—cold climate

Use and Management

Livestock Grazing

Fitzwater and Hapgood, thick and thin surface
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Fitzwater and Hapgood, thin surface
- The low available water capacity of the surface layer limits seedling survival.

Fitzwater
- The very stony surface layer restricts the operation of ground seeding equipment.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity, surface stones, and steepness of slope.

Hapgood, thick surface
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the steepness of slope and short growing season.

Hapgood, thin surface
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the surface rock fragments and short growing season.

113—Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes

Composition

Fitzwater and similar soils—60 percent
Rock outcrop—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 4,800 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Fitzwater—(North Slopes 10-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fitzwater

0 to 9 inches—grayish brown very cobbly loam
9 to 16 inches—brown very gravelly loam
16 to 30 inches—brown extremely cobbly loam
30 to 58 inches—pale brown extremely stony sandy loam
58 inches—basalt

Properties and Qualities of Fitzwater

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Felcher soils on south- and west-facing hillsides

Major Soil Limitations

Fitzwater—available water capacity, water erosion, slope

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope and areas of Rock outcrop.

114—Flank-Lava flows complex, 1 to 40 percent slopes

Composition

Flank and similar soils—50 percent
Lava flows—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills near Diamond Crater
Position on landform: Flank—slopes of 1 to 10 percent; Lava flows—basalt flow pressure ridges with slopes of 2 to 40 percent
Parent material: Flank—cinders and ash
Geology: Basalt
Elevation: 4,100 to 4,300 feet
Rangeland ecological site and characteristic vegetation: Flank—(Shallow Lava 10-12PZ) basin big sagebrush, Thurber needlegrass, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Flank

0 to 1 inch—dark grayish brown extremely gravelly loamy sand
1 to 9 inches—dark brown very gravelly sandy loam
9 inches—basalt

Properties and Qualities of Flank

Depth: 4 to 15 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Aval soils on hills

Major Soil Limitations

Flank—available water capacity, depth to bedrock

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The areas of Lava flows restrict livestock movement.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, surface rock fragments, and areas of Lava flows.

115—Fourwheel stony loam, 3 to 12 percent slopes

Composition

Fourwheel and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 6,400 feet
Rangeland ecological site and characteristic vegetation: (Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—gray stony loam
7 to 14 inches—dark yellowish brown clay
14 to 22 inches—yellowish brown clay
22 inches—basalt

Soil Properties and Qualities

Depth: 4 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 3 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Vining soils on hills
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential, surface stones

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The surface stones restrict the operation of ground seeding equipment.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the depth to the claypan and surface stones.

116—Fourwheel extremely cobbly loam, 20 to 40 percent north slopes

Composition

Fourwheel and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 5,400 feet
Rangeland ecological site and characteristic vegetation: (North Slopes 10-12PZ)
Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—gray extremely cobbly loam
7 to 14 inches—dark yellowish brown clay
14 to 22 inches—yellowish brown clay
22 inches—basalt

Soil Properties and Qualities

Depth: 4 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Anawalt and Reluctan soils on hills
- Felcher soils on south-facing hillsides
- Rock outcrop

Major Soil Limitations

Water erosion, available water capacity, surface rock fragments, depth to bedrock, depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of erosion.
- The low available water capacity of the surface layer limits seedling survival.
- The extremely cobbly surface layer prohibits the operation of ground seeding equipment.
- The extremely cobbly soil surface limits livestock movement and the distribution of grazing.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drained adequately before grazing to prevent compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the surface rock fragments.

117—Freznik very stony silt loam, 2 to 15 percent slopes

Composition

Freznik and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 5,700 to 6,200 feet

Rangeland ecological site and characteristic vegetation: (Thin Surface Claypan 10-16PZ) low sagebrush, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—light brownish gray very stony silt loam
4 to 12 inches—pale brown cobbly silty clay loam
12 to 20 inches—light yellowish brown silty clay
20 to 31 inches—light yellowish brown silty clay loam
31 to 35 inches—very pale brown silty clay loam
35 inches—basalt

Soil Properties and Qualities

Depth: 2 to 5 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Carryback soils on plateaus
- Rock outcrop and Rubble land

Major Soil Limitations

Surface stones, depth to bedrock, depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of equipment.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, low sagebrush and rabbitbrush increase and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the depth to the claypan and surface stones.

118—Fury silt loam, 0 to 1 percent slopes

Composition

Fury and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 5,100 feet
Rangeland ecological site and characteristic vegetation: (Basin Wet Meadow)
Nebraska sedge, Baltic rush, spikerush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Voltage soils on low lake terraces
- Opie and Skidoosprings soils on lake plains

Major Soil Limitations

Wetness, corrosivity, frost action

Use and Management

Irrigated Hayland

- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heaving.

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may restrict plant growth.

- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is good.

119—Fury silt loam, 0 to 1 percent slopes, ponded

Composition

Fury and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Position on landform: Depressions
Parent material: Lacustrine sediment
Elevation: 4,700 to 5,100 feet
Rangeland ecological site and characteristic vegetation: (Lakebed) spikerush, dock, Baltic rush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Swalesilver soils in depressions of lake plains
- Playas

Major Soil Limitations

Wetness, frost action, corrosivity

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in restricted plant growth.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- As the site deteriorates, bottlebrush squirreltail increases and spikerush and mat muhly decrease.
- The suitability for seeding is fair because of wetness.

120—Fury-Degarmo complex, 0 to 2 percent slopes

Composition

Fury and similar soils—55 percent
Degarmo and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Fury—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush; Degarmo—(Loamy Bottom) basin big sagebrush, basin wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fury

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Properties and Qualities of Fury

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: About 12 inches

Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Degarmo

0 to 3 inches—dark gray silt loam
3 to 21 inches—dark gray silty clay loam and clay
21 to 28 inches—grayish brown clay loam
28 to 60 inches—grayish brown sandy clay loam and very gravelly sandy loam

Properties and Qualities of Degarmo

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Rare
Water table: Present in spring through early in summer
Permeability: Slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Widowspring soils on stream terraces
- Opie soils on low stream terraces
- Skidoosprings soils on lake terraces
- Housefield soils on flood plains

Major Soil Limitations

Fury and Degarmo—corrosivity, frost action, wetness
Degarmo—shrink-swell potential

Use and Management

Irrigated Hayland

Fury and Degarmo

- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Livestock Grazing

Fury and Degarmo

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.

- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.

Fury
- The suitability for seeding is good.

Degarmo
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is good.

121—Fury-Housefield complex, 0 to 1 percent slopes

Composition

Fury and similar soils—50 percent
Housefield and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,100 to 4,230 feet
Rangeland ecological site and characteristic vegetation: Fury—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush; Housefield—(Wet Marsh) hardstem bulrush, broadfruit burreed
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fury

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Properties and Qualities of Fury

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Housefield

3 inches to 0—slightly decomposed roots and leaves
0 to 36 inches—black mucky silt loam
36 to 48 inches—black mucky silty clay loam
48 to 60 inches—brown silty clay

Properties and Qualities of Housefield

Depth: 40 to 60 inches to the clayey layer and more than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 16 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High in the substratum
Potential frost action: High

Contrasting Inclusions

- Doubleo, Jimgreen, Skidoosprings, and Widowspring soils on lake plains

Major Soil Limitations

Fury and Housefield—wetness, frost action
Fury—corrosivity
Housefield—shrink-swell potential

Use and Management

Irrigated Hayland

Fury and Housefield
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Livestock Grazing

Fury and Housefield
- Providing adequate drainage is difficult because most areas have poor outlets.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.

Fury
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is good.

Housefield
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of wetness.

122—Fury-Housefield-Skidoosprings complex, 0 to 2 percent slopes

Composition

Fury and similar soils—40 percent
Housefield and similar soils—30 percent
Skidoosprings and similar soils—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Position on landform: Fury—plane areas with slopes of 0 to 1 percent; Housefield—plane or concave areas with slopes of 0 to 1 percent; Skidoosprings—convex areas with slopes of 0 to 2 percent
Parent material: Lacustrine sediment
Elevation: 4,105 to 4,110 feet
Rangeland ecological site and characteristic vegetation: Fury—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush; Housefield—(Wet Marsh) hardstem bulrush, broadfruit burreed; Skidoosprings—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fury

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Properties and Qualities of Fury

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Housefield

3 inches to 0—slightly decomposed leaves and stems
0 to 36 inches—black mucky silt loam
36 to 48 inches—black mucky silty clay loam
48 to 60 inches—brown silty clay

Properties and Qualities of Housefield

Depth: 40 to 60 inches to a clayey layer and more than 60 inches to bedrock
Drainage class: Very poorly drained

Ponding: Present in spring and summer
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 16 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High in the substratum
Potential frost action: High

Typical Profile of Skidoosprings

0 to 11 inches—pale brown sandy loam
11 to 41 inches—pale brown sandy loam
41 to 49 inches—indurated duripan
49 to 60 inches—very pale brown coarse sandy loam

Properties and Qualities of Skidoosprings

Depth: 40 to 50 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Doubleo, Jimgreen, and Skunkfarm soils on lake plains

Major Soil Limitations

Fury, Housefield, and Skidoosprings—wetness, frost action
Fury and Skidoosprings—corrosivity
Housefield—shrink-swell potential
Skidoosprings—wind erosion, seepage, salinity, alkalinity

Use and Management

Irrigated Hayland

Fury, Housefield, and Skidoosprings

- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Skidoosprings

- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, sulphur amendments are needed because of the strong alkalinity of the soil.

- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Livestock Grazing

Fury, Housefield, and Skidoosprings
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.

Fury and Skidoosprings
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Fury
- The suitability for seeding is good.

Housefield
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of wetness.

Skidoosprings
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and moderate salinity.

123—Fury-Opie complex, 0 to 1 percent slopes

Composition

Fury and similar soils—55 percent
Opie and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment

Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Fury—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush; Opie—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fury

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Properties and Qualities of Fury

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Opie

0 to 7 inches—gray silt loam
7 to 10 inches—gray silty clay loam
10 to 16 inches—gray silt loam
16 to 26 inches—dark gray silty clay loam
26 to 44 inches—gray and dark grayish brown silt loam
44 to 64 inches—light brownish gray gravelly loam

Properties and Qualities of Opie

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Moderate
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Crowcamp, Skidoosprings, and Widowspring soils on lake plains

Major Soil Limitations

Fury and Opie—wetness, corrosivity, frost action
Opie—salinity, alkalinity

Use and Management

Irrigated Cropland

Fury and Opie
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Opie
- Salt-tolerant plants are the most suitable for planting.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

Fury and Opie
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Fury
- The suitability for seeding is good.

Opie
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the strong salinity and moderate alkalinity.

124—Fury-Skidoosprings-Opie complex, 0 to 2 percent slopes

Composition

Fury and similar soils—35 percent
Skidoosprings and similar soils—30 percent
Opie and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Fury and Opie—plane; Skidoosprings—convex
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Fury—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush; Skidoosprings—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass; Opie—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fury

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam
27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Properties and Qualities of Fury

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Skidoosprings

0 to 11 inches—pale brown sandy loam
11 to 41 inches—pale brown sandy loam
41 to 49 inches—indurated duripan
49 to 60 inches—very pale brown coarse sandy loam

Properties and Qualities of Skidoosprings

Depth: 40 to 50 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Opie

0 to 7 inches—gray silt loam
7 to 10 inches—gray silty clay loam

10 to 16 inches—gray silt loam
16 to 26 inches—dark gray silty clay loam
26 to 44 inches—gray and dark grayish brown silt loam
44 to 64 inches—light brownish gray gravelly loam

Properties and Qualities of Opie

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Moderate
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Crowcamp and Widowspring soils on lake plains

Major Soil Limitations

Fury, Skidoosprings, and Opie—wetness, corrosivity, frost action
Skidoosprings and Opie—salinity, alkalinity
Skidoosprings—seepage, wind erosion

Use and Management

Irrigated Hayland

Fury, Skidoosprings, and Opie
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- A seasonal high water table provides supplemental water for adapted plants.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Skidoosprings
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Skidoosprings and Opie
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, amendments are needed because of the alkalinity and salinity of the soil.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

Fury, Skidoosprings, and Opie
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.

Skidoosprings and Opie
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.

Fury
- The suitability for seeding is good.

Skidoosprings
- The risk of seepage limits the construction of water impoundments.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and moderate salinity.

Opie
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the strong salinity and moderate alkalinity.

125—Fury-Widowspring complex, 0 to 2 percent slopes

Composition

Fury and similar soils—45 percent
Widowspring and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains (fig. 3)
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Fury—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush; Widowspring—(Loamy Bottom) basin big sagebrush, basin wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Fury

0 to 14 inches—dark gray silt loam
14 to 27 inches—dark gray silty clay loam



Figure 3.—Area of Fury-Widowspring complex, 0 to 2 percent slopes, in Diamond Valley. These soils are important for use as hay and pasture.

27 to 34 inches—light gray silt loam
34 to 44 inches—white silt loam
44 to 60 inches—gray silty clay loam

Properties and Qualities of Fury

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Frequency of ponding: Rare
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Widowspring

0 to 7 inches—dark grayish brown silt loam
7 to 22 inches—grayish brown silt loam
22 to 43 inches—brown silt loam
43 to 63 inches—yellowish brown loam

Properties and Qualities of Widowspring

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in winter and spring
Ponding: Present in spring
Permeability: Moderately slow

Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Contrasting Inclusions

- Crowcamp, Degarmo, Opie, and Skidoosprings soils on lake plains

Major Soil Limitations

Fury and Widowspring—wetness, frost action
Fury—corrosivity

Use and Management

Irrigated Hayland

Fury
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Livestock Grazing

Fury and Widowspring
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- The suitability for seeding is good.

Fury
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, sedges, rushes, cinquefoil, bluegrasses, and reedgrass increase and tufted hairgrass decreases.

Widowspring
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.

126—Gaib gravelly loam, 2 to 20 percent slopes

Composition

Gaib and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex

Parent material: Residuum and colluvium
Geology: Welded tuff
Elevation: 4,700 to 5,400 feet
Forestland plant association and characteristic vegetation: (Ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass) ponderosa pine, antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—16 to 18 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

2 inches to 0—slightly decomposed pine needles and twigs
0 to 3 inches—dark grayish brown gravelly loam
3 to 7 inches—brown gravelly loam
7 to 12 inches—brown very cobbly clay loam
12 to 16 inches—light yellowish brown extremely cobbly clay loam
16 inches—fractured welded tuff

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Arcia, Erakatak, and Observation soils on hills
- Cumulic Haploxerolls in swales and drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- This soil is susceptible to invasion by western juniper.
- The suitability for seeding is poor because of the low available water capacity.

Forest Products

- Seasonal restriction of travel should be considered or additional rock should be placed in the road subgrade and surface grade to minimize rutting of the surface.
- Roads and landings are very difficult to construct because of the shallow depth to bedrock.
- The shallow depth to bedrock prevents deep mechanical site preparation.
- The seedling mortality rate is high because of the low available water capacity.

127—Gaib-Ateron complex, 2 to 15 percent slopes

Composition

Gaib and similar soils—55 percent
Ateron and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Gaib—welded tuff; Ateron—basalt, andesite, and welded tuff
Elevation: 4,800 to 5,100 feet
Forestland plant association and characteristic vegetation: Gaib—(ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass) ponderosa pine, antelope bitterbrush, mountain big sagebrush, Idaho fescue
Rangeland ecological site and characteristic vegetation: Ateron—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 18 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Gaib

2 inches to 0—slightly decomposed pine needles and twigs
0 to 3 inches—dark grayish brown gravelly loam
3 to 7 inches—brown gravelly loam
7 to 12 inches—brown very cobbly clay loam
12 to 16 inches—light yellowish brown extremely cobbly clay loam
16 inches—fractured welded tuff

Properties and Qualities of Gaib

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Ateron

0 to 5 inches—dark grayish brown very gravelly loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Erakatak, Lambring, Merlin, and Ticino soils on hills
- Roschene soils in swales and drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Gaib and Ateron—available water capacity, depth to bedrock
Ateron—shrink-swell potential

Use and Management

Livestock Grazing

Gaib and Ateron
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The suitability for seeding is poor because of the low available water capacity.

Gaib
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

Ateron
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

Forest Products

Gaib
- Seasonal restriction of travel should be considered or additional rock should be placed in the road subgrade and surface grade to minimize rutting of the surface.
- Roads and landings are very difficult to construct because of the shallow depth to bedrock.
- The shallow depth to bedrock prevents deep mechanical site preparation.
- The seedling mortality rate is high because of the low available water capacity.

128—Gaib-Rock outcrop complex, 20 to 60 percent slopes

Composition

Gaib and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Welded tuff

Elevation: 4,300 to 5,000 feet
Forestland plant association and characteristic vegetation: Gaib—(ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass) ponderosa pine, antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 18 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Gaib

2 inches to 0—slightly decomposed pine needles and twigs
0 to 3 inches—dark grayish brown gravelly loam
3 to 7 inches—brown gravelly loam
7 to 12 inches—brown very cobbly clay loam
12 to 16 inches—light yellowish brown extremely cobbly clay loam
16 inches—fractured welded tuff

Properties and Qualities of Gaib

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Arcia, Erakatak, and Observation soils on hills
- Cumulic Haploxerolls in swales and drainageways

Major Soil Limitations

Gaib—water erosion, slope, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- This soil is susceptible to invasion by western juniper invasion.
- The suitability for seeding is very poor because of the steepness of slope.

Forest Products

- Special harvesting techniques and alternative site preparation and timing should be used to minimize soil erosion.
- Steepness of slope and the areas of Rock outcrop restrict the use of wheeled and tracked equipment and the construction of roads and landings.

- The shallow depth to bedrock and the steepness of slope prevent deep mechanical site preparation.
- Planting by hand is difficult because of the steepness of slope.
- Mechanical planting is prohibited by the steepness of slope and areas of Rock outcrop.
- The seedling mortality rate is high because of the low available water capacity.

129—Gilispie-Noname complex, 3 to 15 percent slopes

Composition

Gilispie and similar soils—65 percent
Noname and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 5,800 to 7,000 feet
Rangeland ecological site and characteristic vegetation: Gilispie—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass; Noname—(Rocky Ridges 12-16PZ) curl-leaf mountain mahogany, mountain big sagebrush, skyline bluegrass
Climatic factors:
Mean annual precipitation—12 to 25 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Gilispie

0 to 5 inches—dark brown loam
5 to 14 inches—dark brown silty clay loam
14 inches—basalt

Properties and Qualities of Gilispie

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Noname

0 to 3 inches—pale brown very stony loam
3 to 12 inches—yellowish brown clay loam
12 inches—andesite

Properties and Qualities of Noname

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow

Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Buckwilder and Baconcamp soils on mountains
- Rock outcrop

Major Soil Limitations

Gilispie and Noname—depth to bedrock, cold climate
Noname—surface stones

Use and Management

Livestock Grazing

Gilispie and Noname
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

Gilispie
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

Noname
- The very stony surface layer restricts the operation of equipment.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and basin wildrye, skyline bluegrass, and western needlegrass decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.

130—Gochea sandy loam, 0 to 2 percent slopes

Composition

Gochea and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus and lake terraces
Position on landform: Depressions
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,300 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ)
basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—grayish brown sandy loam
9 to 13 inches—brown sandy loam
13 to 27 inches—light yellowish brown sandy loam
27 to 35 inches—very pale brown gravelly sandy loam
35 to 62 inches—light yellowish brown very gravelly sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Felcher soils on hills
- Playas
- Rock outcrop

Major Soil Limitations

Wind erosion, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is good.

131—Goldrun-Alvodest complex, 0 to 12 percent slopes

Composition

Goldrun and similar soils—55 percent
Alvodest and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Position on landform: Goldrun—sand dunes with slopes of 2 to 12 percent; Alvodest—slopes of 0 to 3 percent
Parent material: Goldrun—eolian sand; Alvodest—lacustrine sediment
Elevation: 4,000 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Goldrun—(Sodic Dunes) basin big sagebrush, black greasewood, Indian ricegrass, needleandthread; Alvodest—(Sodic Flat) black greasewood, inland saltgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Goldrun

0 to 24 inches—pale brown loamy sand
24 to 56 inches—pale brown loamy fine sand
56 to 62 inches—brown sandy clay loam

Properties and Qualities of Goldrun

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Rapid over moderately slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Typical Profile of Alvodest

0 to 2 inches—light gray silty clay loam
2 to 6 inches—light brownish gray silty clay loam
6 to 42 inches—grayish brown silty clay
42 to 53 inches—light brownish gray silty clay
53 to 78 inches—light gray silty clay

Properties and Qualities of Alvodest

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in winter and spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Reese soils on lake plains
- Soils that are similar to the Alvodest soil but have a sandy surface layer
- Playas

Major Soil Limitations

Goldrun and Alvodest—available water capacity, wind erosion, corrosivity
Goldrun—seepage
Alvodest—shrink-swell potential, salinity, alkalinity, wetness, frost action

Use and Management

Livestock Grazing

Goldrun and Alvodest

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Goldrun

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The risk of seepage as a result of the rapid permeability limits the construction of water impoundments.
- Severe deterioration of the plant community leads to unstable areas of windblown sand.
- As the site deteriorates, black greasewood and inland saltgrass increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, and Russian thistle.
- The suitability for seeding is very poor because of droughtiness.

Alvodest

- This soil provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, black greasewood, alkali sacaton, and seepweed increase and inland saltgrass and basin wildrye decrease.
- The suitability for seeding is very poor because of droughtiness and the strong salinity and alkalinity.

132—Gradon gravelly fine sandy loam, 0 to 8 percent slopes

Composition

Gradon and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Fan terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,300 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—brown gravelly fine sandy loam
3 to 10 inches—brown loam
10 to 22 inches—light yellowish brown clay loam

22 to 32 inches—light yellowish brown gravelly sandy clay loam
32 to 48 inches—indurated duripan
48 to 52 inches—strongly cemented duripan
52 to 62 inches—pale brown sandy loam

Soil Properties and Qualities

Depth: 20 to 40 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate

Contrasting Inclusions

- Carryback soils on plateaus and hills
- Brace soils on plateaus
- Carvix soils on stream terraces
- Lambring soils on mountains

Major Soil Limitations

Depth to a hardpan, wind erosion

Use and Management

Livestock Grazing

- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

133—Guano gravelly sandy loam, 2 to 15 percent slopes

Composition

Guano and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Loess
Geology: Tuffaceous sedimentary rock
Elevation: 4,600 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—pale brown gravelly sandy loam

3 to 11 inches—yellowish brown gravelly clay loam
11 inches—weathered tuffaceous sedimentary rock

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Reallis soils on lake terraces
- Rock outcrop
- Carvix soils on stream terraces
- Brace and Raz soils on plateaus

Major Soil Limitations

Water erosion, depth to bedrock, wind erosion, available water capacity, corrosivity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

134—Gumble very gravelly silt loam, 2 to 20 percent slopes

Composition

Gumble and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Shallow 9-12PZ)
bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches

Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—pale brown very gravelly silt loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Longcreek soils on hills
- Bucklake soils on north-facing hillslopes
- Rock outcrop

Major Soil Limitations

Corrosivity, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

135—Gumble very stony loam, 20 to 40 percent south slopes

Composition

Gumble and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: South- and west-facing side slopes
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,300 feet
Rangeland ecological site and characteristic vegetation: (SR Shallow South 9-12PZ) bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—pale brown very stony loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Longcreek and Drewsey soils on hills
- Bucklake soils on north-facing hillslopes
- Modoc soils on fans
- Rock outcrop

Major Soil Limitations

Available water capacity, water erosion, surface stones, depth to bedrock, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

136—Gumble-Mahoon-Cagle complex, 2 to 40 percent slopes

Composition

Gumble and similar soils—35 percent
Mahoon and similar soils—30 percent
Cagle and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Gumble—ridges with slopes of 2 to 20 percent; Mahoon—south- and west-facing side slopes of 20 to 40 percent; Cagle—north- and east-facing side slopes of 20 to 40 percent
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,500 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Gumble—(SR Shallow 9-12PZ) bluebunch wheatgrass, Thurber needlegrass; Mahoon—(SR Shallow South 9-12PZ) bluebunch wheatgrass, Thurber needlegrass; Cagle—(SR Mountain North 9-12PZ) Idaho fescue
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Gumble

0 to 3 inches—pale brown very gravelly silt loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Properties and Qualities of Gumble

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Mahoon

0 to 3 inches—grayish brown very gravelly loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay
18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Cagle

0 to 4 inches—brown very gravelly loam
4 to 12 inches—brown clay
12 to 24 inches—yellowish brown clay
24 to 36 inches—yellowish brown clay loam
36 inches—tuffaceous sedimentary rock

Properties and Qualities of Cagle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Legler soils on stream terraces
- Bucklake soils on hillsides at higher elevations in the Drinkwater Pass area

Major Soil Limitations

Gumble, Mahoon, and Cagle—depth to bedrock, shrink-swell potential
Gumble and Mahoon—corrosivity
Gumble—available water capacity
Mahoon—depth to a claypan, water erosion
Cagle—water erosion

Use and Management

Livestock Grazing

Gumble, Mahoon, and Cagle

- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- The upper part of the soils is saturated following snowmelt.
- Depth to bedrock limits the construction of water impoundments.
- This unit is suited to grazing in winter.

Gumble and Mahoon
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Mahoon and Cagle
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes water erosion.
- These soils are susceptible to invasion by cheatgrass.

Gumble
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

Mahoon
- The claypan restricts the rooting depth.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the depth to the claypan.

Cagle
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the surface rock fragments.

137—Hackwood gravelly loam, 20 to 35 percent slopes

Composition

Hackwood and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Loess and colluvium
Geology: Basalt and andesite
Elevation: 5,400 to 8,200 feet
Rangeland ecological site and characteristic vegetation: (Aspen 16-35PZ) quaking aspen, whortleleaf snowberry, sedge
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile

0 to 11 inches—brown gravelly loam
11 to 23 inches—brown loam
23 to 48 inches—brown gravelly loam
48 to 60 inches—light yellowish brown gravelly loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock

Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Baconcamp soils on side slopes
- Hapgood soils on north-facing side slopes
- Leemorris soils on ridges
- Rock outcrop

Major Soil Limitations

Water erosion, cold climate, seepage, slope

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The risk of seepage limits the construction of water impoundments.
- Excessive use of aspen reduces its productivity and potential for regeneration.
- As the site deteriorates, shrubs and forbs increase and needlegrasses decrease.
- The suitability for seeding is fair because of the short growing season and steepness of slope.

138—Hackwood-Baconcamp complex, 20 to 35 percent north slopes

Composition

Hackwood and similar soils—50 percent
Baconcamp and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Loess and colluvium
Geology: Basalt
Elevation: 6,600 to 9,200 feet
Rangeland ecological site and characteristic vegetation: Hackwood—(Aspen 16-35PZ) quaking aspen, whortleleaf snowberry, sedge; Baconcamp—(Subalpine Slopes 16-35PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Hackwood

0 to 11 inches—brown gravelly loam
11 to 23 inches—brown loam

23 to 48 inches—brown gravelly loam
48 to 60 inches—light yellowish brown gravelly loam

Properties and Qualities of Hackwood

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very cobbly loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Krackle and Clamp soils on side slopes
- Dickle and Leemorris soils on ridges
- Rock outcrop

Major Soil Limitations

Hackwood and Baconcamp—water erosion, cold climate
Hackwood—seepage
Baconcamp—depth to bedrock, surface rock fragments

Use and Management

Livestock Grazing

Hackwood and Baconcamp
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Hackwood
- The risk of seepage limits the construction of water impoundments.
- Excessive use of aspen reduces its productivity and potential for regeneration.
- As the site deteriorates, shrubs and forbs increase and needlegrasses decrease.
- The suitability for seeding is fair because of the short growing season.

Baconcamp
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the surface rock fragments and short growing season.

139—Hapgood very cobbly loam, 2 to 12 percent slopes

Composition

Hapgood and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 6,800 to 8,100 feet
Rangeland ecological site and characteristic vegetation: (Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile

0 to 10 inches—dark gray very cobbly loam
10 to 43 inches—dark grayish brown very stony loam
43 inches—basalt

Soil Properties and Qualities

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Noname soils on ridges
- Welch soils in swales
- Baconcamp soils on side slopes
- Duff soils in concave areas
- Rock outcrop

Major Soil Limitation

Cold climate

Use and Management

Livestock Grazing

- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by western juniper.
- The suitability for seeding is poor because of the short growing season.

140—Hart Camp cobbly loam, 5 to 15 percent slopes

Composition

Hart Camp and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Tuff
Elevation: 4,100 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Shallow 9-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—brown cobbly loam
9 to 19 inches—brown cobbly clay loam
19 inches—weathered tuff

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Felcher soils on south-facing hillslopes
- Lambring soils on north-facing hillslopes
- Carryback soils on hills

Major Soil Limitations

Depth to bedrock

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of water erosion.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the depth to bedrock.

141—Hart Camp cobbly loam, 15 to 30 percent slopes

Composition

Hart Camp and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Tuff
Elevation: 4,100 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Shallow 9-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—brown cobbly loam
9 to 19 inches—brown cobbly clay loam
19 inches—weathered tuff

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Felcher soils on south-facing hillslopes
- Lambring soils on north-facing hillslopes
- Carryback soils on hills

Major Soil Limitations

Water erosion, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the depth to bedrock.

142—Helphenstein-Goldrun complex, 0 to 15 percent slopes

Composition

Helphenstein and similar soils—50 percent
Goldrun and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Position on landform: Helphenstein—slopes of 0 to 1 percent; Goldrun—sand dunes with slopes of 1 to 15 percent
Parent material: Helphenstein—lacustrine sediment; Goldrun—eolian sand
Elevation: 4,400 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Helphenstein—(Sodic Flat) black greasewood, inland saltgrass; Goldrun—(Sodic Dunes) basin big sagebrush, black greasewood, Indian ricegrass, needleandthread
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Helphenstein

0 to 3 inches—light brownish gray fine sandy loam
3 to 9 inches—light yellowish brown loam
9 to 26 inches—pale yellow loam
26 to 33 inches—pale yellow fine sandy loam
33 to 41 inches—pale yellow very fine sandy loam
41 to 51 inches—light gray loam
51 to 62 inches—pale yellow fine sandy loam

Properties and Qualities of Helphenstein

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in winter and spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High
Corrosivity to concrete: High

Typical Profile of Goldrun

0 to 24 inches—pale brown loamy fine sand
24 to 56 inches—pale brown loamy fine sand
56 to 62 inches—brown sandy clay loam

Properties and Qualities of Goldrun

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Rapid over moderately slow

Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- Playas
- Davey soils on lake terraces

Major Soil Limitations

Helphenstein and Goldrun—wind erosion, seepage, corrosivity
Helphenstein—wetness, salinity, alkalinity
Goldrun—low available water capacity

Use and Management

Livestock Grazing

Helphenstein and Goldrun
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.
- The risk of seepage limits the construction of water impoundments.

Helphenstein
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, black greasewood, alkali sacaton, and seepweed increase and inland saltgrass and basin wildrye decrease.
- The suitability for seeding is poor because of droughtiness and the strong alkalinity.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Goldrun
- The low available water capacity of the surface layer limits seedling survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Severe deterioration of the plant community leads to unstable areas of windblown sand.
- As the site deteriorates, black greasewood and inland saltgrass increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, and Russian thistle.
- The suitability for seeding is poor because of droughtiness.

143—Homefield mucky silt loam, 0 to 1 percent slopes

Composition

Homefield and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane

Parent material: Lacustrine sediment
Elevation: 4,090 to 4,105 feet
Rangeland ecological site and characteristic vegetation: (Wet Marsh) hardstem bulrush, broadfruit burreed
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 25 inches—very dark gray mucky silt loam
25 to 48 inches—very dark grayish brown mucky silt loam and silty clay loam
48 to 60 inches—brown clay

Soil Properties and Qualities

Depth: 40 to 60 inches to the clayey layer and more than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 16 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Strong
Shrink-swell potential: High in the substratum
Potential frost action: High

Contrasting Inclusions

- Duckclub and Thenarrows soils on lake plains
- Sandgap soils on sand dunes of lake plains

Major Soil Limitations

Wetness, shrink-swell potential of the substratum, alkalinity

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- The suitability for seeding is very poor because of wetness.

144—Housefield mucky silt loam, 0 to 1 percent slopes

Composition

Housefield and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains (fig. 4)
Slope features: Plane



Figure 4.—View of the Blitzen River Valley. Area of Housefield mucky silt loam, 0 to 1 percent slopes, in foreground.

Parent material: Lacustrine sediment
Elevation: 4,100 to 4,230 feet
Rangeland ecological site and characteristic vegetation: (Basin Wet Meadow)
Nebraska sedge, Baltic rush, spikerush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

3 inches to 0—slightly decomposed roots and leaves
0 to 36 inches—black mucky silt loam
36 to 48 inches—black mucky silty clay loam
48 to 60 inches—brown silty clay

Soil Properties and Qualities

Depth: 40 to 60 inches to the clayey layer and more than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 16 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: Moderate
Shrink-swell potential: High
Potential frost action: High

Contrasting Inclusions

- Fury and Jimgreen soils on flood plains
- Doubleo soils in depressions

Major Soil Limitations

Wetness, shrink-swell potential of the substratum, frost action

Use and Management

Irrigated Hayland

- Ponding and a seasonal high water table restrict the timing for haying and grazing.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in restricted plant growth.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of wetness.

145—Housefield-Doubleo complex, 0 to 1 percent slopes

Composition

Housefield and similar soils—45 percent
Doubleo and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane and concave
Parent material: Lacustrine sediment
Elevation: 4,100 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Housefield—(Wet Marsh) hardstem bulrush, broadfruit burreed; Doubleo—(Semi-wet Marsh) cattail
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Housefield

3 inches to 0—slightly decomposed roots and leaves
0 to 36 inches—black mucky silt loam
36 to 48 inches—black mucky silty clay loam
48 to 60 inches—brown silty clay

Properties and Qualities of Housefield

Depth: 40 to 60 inches to the clayey layer and more than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 16 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Potential frost action: High

Typical Profile of Doubleo

0 to 3 inches—dark grayish brown loam
3 to 10 inches—dark gray silty clay
10 to 20 inches—dark grayish brown clay
20 to 28 inches—gray clay loam
28 to 45 inches—light brownish gray fine sandy loam
45 to 60 inches—pale brown loam

Properties and Qualities of Doubleo

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring and summer
Water table: Present in spring and summer
Permeability: Very slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Fury, Jimgreen, and Skidoosprings soils on lake plains
- Mcbain soils on lake terraces

Major Soil Limitations

Housefield and Doubleo—wetness, shrink-swell potential, frost action
Doubleo—corrosivity

Use and Management

Livestock Grazing

Housefield and Doubleo

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

- The suitability for seeding is very poor because of wetness.

Doubleo
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

146—Icene-Playas complex, 0 to 1 percent slopes

Composition

Icene and similar soils—60 percent
Playas—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Icene—plane; Playas—plane or concave
Parent material: Lacustrine sediment
Elevation: 4,400 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Icene—(Low Sodic Terrace 6-10PZ) black greasewood, shadscale, spiny hopsage, bottlebrush squirreltail, bud sagebrush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Icene

0 to 6 inches—light gray loam
6 to 13 inches—light gray clay loam
13 to 22 inches—light brownish gray clay loam
22 to 32 inches—light brownish gray silty clay loam
32 to 44 inches—light gray silt loam
44 to 62 inches—light brownish gray clay loam

Properties and Qualities of Icene

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Water table: Present late in winter and in spring
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Playas

0 to 60 inches—stratified loamy, silty, and clayey lacustrine sediment

Properties and Qualities of Playas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: May be present throughout the year

Water table: Present throughout the year
Permeability: Very slow
Hazard of erosion: Water—slight; wind—slight to severe
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Boravall soils on lake plains
- Enko soils on lake terraces

Major Soil Limitations

Icene and Playas—salinity, alkalinity, available water capacity, wetness, wind erosion, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- Maintaining adequate plant cover reduces wind erosion.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale, black greasewood, and bottlebrush squirreltail increase and bud sagebrush, basin wildrye, and beardless wildrye decrease.
- This unit is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.
- The suitability for seeding is very poor because of droughtiness and the strong alkalinity and salinity.

147—Icene-Playas complex, slightly alkaline, 0 to 1 percent slopes

Composition

Icene and similar soils—60 percent
Playas—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Icene—plane; Playas—plane or concave
Parent material: Lacustrine sediment
Elevation: 4,400 to 4,500 feet

Rangeland ecological site and characteristic vegetation: Icene—(Sodic Terrace 6-10PZ) basin big sagebrush, spiny hopsage, black greasewood, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Icene

0 to 6 inches—light gray fine sandy loam
6 to 13 inches—light gray clay loam
13 to 22 inches—light brownish gray clay loam
22 to 32 inches—light brownish gray silty clay loam
32 to 44 inches—light gray silt loam
44 to 62 inches—light brownish gray clay loam

Properties and Qualities of Icene

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Water table: Present late in winter and in spring
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Playas

0 to 60 inches—stratified loamy, silty, and clayey lacustrine sediment

Properties and Qualities of Playas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: May be present throughout the year
Water table: Present throughout the year
Permeability: Very slow
Hazard of erosion: Water—slight; wind—slight to severe
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Alvodest and Skidoosprings soils on lake plains
- Mesman soils on lake terraces

Major Soil Limitations

Icene and Playas—wind erosion, salinity, alkalinity, available water capacity, corrosivity, wetness, shrink-swell potential

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce infiltration, result in ponding, and restrict seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, shadscale, and black greasewood increase and bud sagebrush, basin wildrye, and Indian ricegrass decrease.
- This unit is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.
- The suitability for seeding is very poor because of droughtiness and the strong alkalinity and salinity.

148—Jesse Camp silt loam, 2 to 5 percent slopes

Composition

Jesse Camp and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,900 to 4,910 feet
Rangeland ecological site and characteristic vegetation: (Swale 10-14PZ) basin big sagebrush, basin wildrye
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 34 inches—pale brown silt loam
34 to 50 inches—very pale brown silt loam
50 to 60 inches—very pale brown very gravelly sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Corrosivity to steel: High

Contrasting Inclusions

- Swaler soils in depressions of lake terraces
- Enko soils on lake terraces
- Playas

Major Soil Limitations

Salinity, corrosivity

Use and Management

Livestock Grazing

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and basin wildrye and bluebunch wheatgrass decrease.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production.
- The suitability for seeding is fair because of droughtiness and salinity.

149—Jimgreen muck, 0 to 1 percent slopes

Composition

Jimgreen and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Landform: Lake plains
Slope features: Concave
Parent material: Organic material and lacustrine sediment
Elevation: 4,130 to 4,140 feet
Rangeland ecological site and characteristic vegetation: (Wet Marsh) hardstem bulrush, broadfruit burreed
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 10 inches—black muck
10 to 12 inches—dark gray mucky silt loam
12 to 32 inches—black muck
32 to 60 inches—dark grayish brown and very dark grayish brown muck

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year

Permeability: Moderate
Available water capacity: About 27 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High
Fire hazard: High when the soil is dry

Contrasting Inclusions

- Fury, Housefield, and Skidoosprings soils on lake plains

Major Soil Limitations

Wetness, subsidence, frost action

Use and Management

Wildlife Habitat

- This unit provides important food and cover for wetland wildlife.
- Saturated soil conditions make fences unstable and limit their placement.
- Because of the high content of organic matter, this soil is subject to subsidence if it is drained and is susceptible to fire.
- The suitability for seeding is very poor because of wetness.

150—Jimgreen-Housefield complex, 0 to 1 percent slopes

Composition

Jimgreen and similar soils—50 percent
Housefield and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains (fig. 5)
Slope features: Jimgreen—concave; Housefield—plane
Parent material: Jimgreen—organic material and lacustrine sediment; Housefield—lacustrine sediment
Elevation: 4,140 to 4,160 feet
Rangeland ecological site and characteristic vegetation: Jimgreen—(Wet Marsh) hardstem bulrush, broadfruit burreed; Housefield—(Basin Wet Meadow) Nebraska sedge, Baltic rush, spikerush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Jimgreen

0 to 10 inches—black muck
10 to 12 inches—dark gray mucky silt loam
12 to 32 inches—black muck
32 to 60 inches—dark grayish brown and very dark grayish brown mucky peat

Properties and Qualities of Jimgreen

Depth: More than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year



Figure 5.—Area of Jimgreen-Housefield complex, 0 to 1 percent slopes, in the Blitzen River Valley.

Permeability: Moderate
Available water capacity: About 27 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High
Fire hazard: High when the soil is dry

Typical Profile of Housefield

3 inches to 0—slightly decomposed roots and leaves
0 to 36 inches—black mucky silt loam
36 to 48 inches—black mucky silty clay loam
48 to 60 inches—brown silty clay

Properties and Qualities of Housefield

Depth: 40 to 60 inches to the clayey layer and more than 60 inches to bedrock
Drainage class: Very poorly drained
Ponding: Present in spring and summer
Water table: Present throughout the year
Permeability: Slow
Available water capacity: About 16 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High in the substratum
Potential frost action: High

Contrasting Inclusions

- Doubleo and Fury soils on lake plains

Major Soil Limitations

Jimgreen—wetness, subsidence, frost action
Housefield—wetness, shrink-swell potential of the substratum, frost action

Use and Management

Livestock Grazing

Jimgreen and Housefield
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- The suitability for seeding is very poor because of wetness.

Jimgreen
- Because of the high content of organic matter, this soil is subject to subsidence if it is drained and is susceptible to fire.

Housefield
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- As the site deteriorates, sedges, rushes, cinquefoil, bluegrasses, and reedgrass increase and tufted hairgrass decreases.

151—Kegler fine sandy loam, 2 to 5 percent slopes

Composition

Kegler and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ)
basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—grayish brown fine sandy loam
7 to 10 inches—brown fine sandy loam
10 to 32 inches—pale brown sandy clay loam
32 to 37 inches—very pale brown silt loam

37 to 49 inches—indurated duripan
49 to 62 inches—very pale brown silt loam

Soil Properties and Qualities

Depth: 25 to 40 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Poujade, Reallis, and Lawen soils on lake terraces
- Ausmus soil on lake plains

Major Soil Limitations

Depth to a hardpan, seepage, corrosivity, wind erosion

Use and Management

Irrigated Hayland

- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to this soil.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Depth to the hardpan limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is good.

152—Kerrfield loam, 3 to 20 percent slopes

Composition

Kerrfield and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Alluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 4,200 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ)
Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 11 inches

Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—pale brown loam
3 to 8 inches—light yellowish brown loam
8 to 12 inches—very pale brown loam
12 to 26 inches—very pale brown sandy loam
26 to 33 inches—very pale brown very gravelly loamy coarse sand
33 inches—tuffaceous sedimentary rock

Soil Properties and Qualities

Depth: 10 to 20 inches to a hard, brittle layer and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Dixon, Deppy, and Enko soils on lake terraces
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, corrosivity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

153—Klicker very gravelly loam, 35 to 60 percent north slopes

Composition

Klicker and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,000 to 6,000 feet
Forestland plant association and characteristic vegetation: (Douglas fir/elk sedge) white fir, Douglas fir, elk sedge

Climatic factors:
Mean annual precipitation—22 to 26 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

3 inches to 0—slightly decomposed pine needles and twigs
0 to 3 inches—brown very gravelly loam
3 to 13 inches—brown very cobbly loam
13 to 17 inches—brown very cobbly clay loam
17 to 24 inches—pale brown very cobbly clay loam
24 inches—fractured basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Rock outcrop
- Royst and Gaib soils on south-facing mountain slopes

Major Soil Limitations

Water erosion, depth to bedrock

Use and Management

Forest Products

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of equipment.
- Depth to bedrock and steepness of slope limit the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, annual and perennial forbs increase.
- Excessive grazing decreases the abundance of sedges, pinegrass, and western fescue.

154—Klicker extremely cobbly loam, 15 to 35 percent north slopes

Composition

Klicker and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,000 to 6,000 feet

Forestland plant association and characteristic vegetation: (Ponderosa pine/elk sedge) ponderosa pine, elk sedge, Idaho fescue
Climatic factors:
Mean annual precipitation—18 to 24 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

3 inches to 0—slightly decomposed pine needles and twigs
0 to 3 inches—brown extremely cobbly loam
3 to 13 inches—brown very cobbly loam
13 to 17 inches—brown very cobbly clay loam
17 to 24 inches—pale brown very cobbly clay loam
24 inches—fractured basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Mound soils on north-facing mountain slopes
- Gaib and Lambring soils on south-facing mountain slopes
- Rock outcrop

Major Soil Limitations

Water erosion, surface rock fragments, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The extremely cobbly surface layer prohibits the operation of ground seeding equipment.
- The extremely cobbly soil surface limits livestock movement and the distribution of grazing.
- Depth to bedrock and steepness of slope limit the construction of water impoundments.
- As the site deteriorates, rabbitbrush and big sagebrush increase and sedges, Idaho fescue, and bluebunch wheatgrass decrease.

Forest Products

- Steepness of slope and the surface rock fragments restrict use of this unit for landings and roads.
- Surface mechanical site preparation is difficult because of the surface rock fragments.
- The surface rock fragments prevent deep mechanical site preparation.
- Planting by hand is difficult because of the surface rock fragments.
- Mechanical planting is prohibited because of the steepness of slope and surface rock fragments.

155—Krackle complex, 20 to 40 percent slopes

Composition

Krackle, north slopes, and similar soils—55 percent
Krackle, south slopes, and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Krackle, north slopes—north- and east-facing side slopes; Krackle, south slopes—south- and west-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 5,500 to 7,400 feet
Rangeland ecological site and characteristic vegetation: Krackle, north slopes—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Krackle, south slopes—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 25 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Krackle, North and South Slopes

0 to 4 inches—grayish brown gravelly loam
4 to 15 inches—brown very stony clay loam
15 to 30 inches—yellowish brown very stony clay loam
30 inches—fractured basalt

Soil Properties and Qualities of Krackle, North and South Slopes

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Baconcamp, Dickle, Duff, and Leemorris soils on side slopes
- Rock outcrop

Major Soil Limitations

Water erosion, depth to bedrock, slope, cold climate

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The steepness of slope restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water and wind erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.

- This unit is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the short growing season and steepness of slope.

156—Krackle-Baconcamp-Rock outcrop complex, 3 to 30 percent slopes

Composition

Krackle and similar soils—40 percent
Baconcamp and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains (fig. 6)
Position on landform: Krackle—side slopes of 10 to 30 percent; Baconcamp—ridges and side slopes of 3 to 30 percent
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 7,900 to 8,800 feet
Rangeland ecological site and characteristic vegetation: Krackle—(Open Slopes 25-35PZ) sedge, Letterman needlegrass, sheep fescue; Baconcamp—(Loamy 25-35PZ) mountain big sagebrush, sheep fescue, Idaho fescue

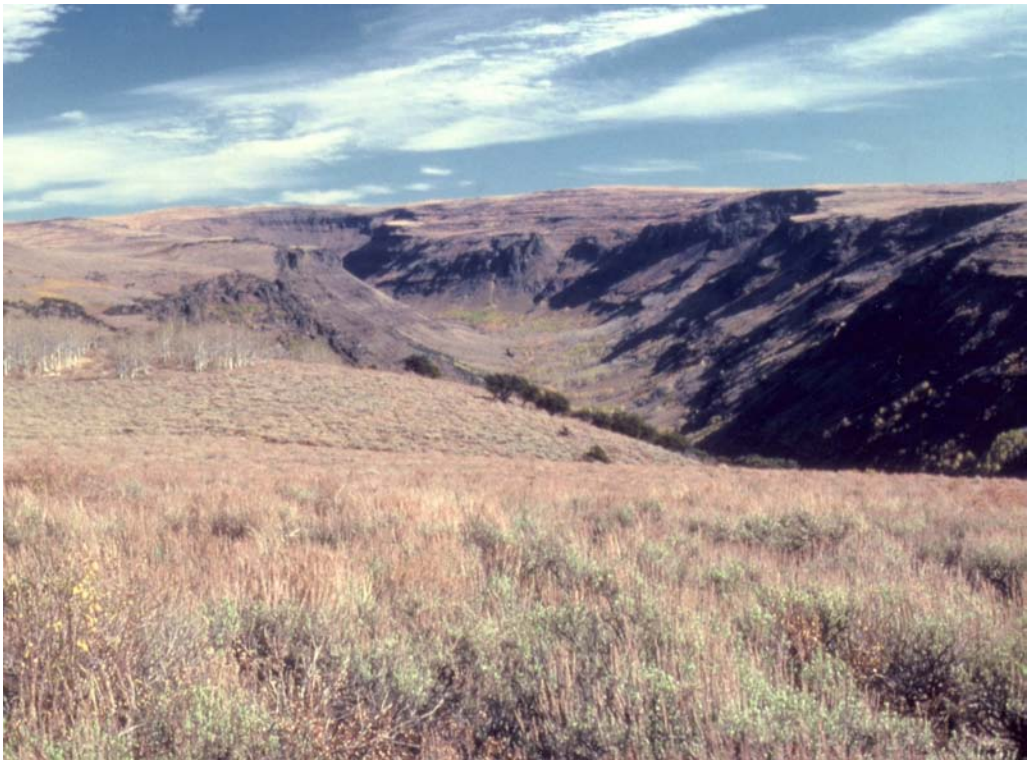


Figure 6.—Area of Krackle-Baconcamp-Rock outcrop complex, 3 to 30 percent slopes, in foreground. Noname-Duff-Rock outcrop complex, 20 to 80 percent slopes, on escarpment. Duff-Hackwood complex, 2 to 30 percent slopes, on canyon bottom, in Little Blitzen Gorge.

Climatic factors:
Mean annual precipitation—25 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Krackle

0 to 4 inches—grayish brown very gravelly loam
4 to 15 inches—brown very stony clay loam
15 to 30 inches—yellowish brown very stony clay loam
30 inches—fractured basalt

Properties and Qualities of Krackle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very gravelly loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Welch soils in swales
- Dickle, Duff, and Leemorris soils on side slopes and ridges

Major Soil Limitations

Depth to bedrock, cold climate

Use and Management

Livestock Grazing

Krackle and Baconcamp
- Depth to bedrock limits the construction of water impoundments.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is fair because of the short growing season and areas of Rock outcrop.

Krackle
- As the site deteriorates, sedges, fescue, and needlegrasses decrease and bottlebrush squirreltail and bluegrasses increase.

Baconcamp
- As the site deteriorates, big sagebrush, rabbitbrush, Sandberg bluegrass, mountain brome, and bottlebrush squirreltail increase and fescue and skyline bluegrass decrease.

157—Krackle-Baconcamp-Rock outcrop complex, high precipitation, 3 to 30 percent slopes

Composition

Krackle and similar soils—40 percent
Baconcamp and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 8,500 to 9,700 feet
Rangeland ecological site and characteristic vegetation: Krackle—(Subalpine Thin Surface 35-40PZ) sheep fescue, skyline bluegrass, Idaho fescue; Baconcamp—(Subalpine Loamy 35-40PZ) rough fescue, sheep fescue, Idaho fescue
Climatic factors:
Mean annual precipitation—35 to 40 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Krackle

0 to 4 inches—grayish brown very gravelly loam
4 to 15 inches—brown very stony clay loam
15 to 30 inches—yellowish brown very stony clay loam
30 inches—fractured basalt

Properties and Qualities of Krackle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very gravelly loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Welch soils in swales
- Duff soils on side slopes and ridges

Major Soil Limitations

Depth to bedrock, cold climate

Use and Management

Livestock Grazing

Krackle and Baconcamp
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is fair because of the short growing season and areas of Rock outcrop.

Krackle
- As the site deteriorates, bottlebrush squirreltail and Sandberg bluegrass increase and fescue and skyline bluegrass decrease.

Baconcamp
- As the site deteriorates, fescue and tufted hairgrass decrease and bottlebrush squirreltail and bluegrasses increase.

158—Krackle-Rock outcrop complex, 25 to 50 percent south slopes

Composition

Krackle and similar soils—70 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 5,700 to 7,400 feet
Rangeland ecological site and characteristic vegetation: Krackle—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 20 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Krackle

0 to 4 inches—grayish brown cobbly clay loam
4 to 15 inches—brown very stony clay loam
15 to 30 inches—yellowish brown very stony clay loam
30 inches—fractured basalt

Properties and Qualities of Krackle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow

Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Buckwilder, Duff, and Noname soils on side slopes
- Hackwood soils in concave areas on side slopes

Major Soil Limitations

Krackle—water erosion, slope, depth to bedrock, cold climate

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope, short growing season, and areas of Rock outcrop.

159—Krackle-Baconcamp-Hackwood association, 20 to 35 percent slopes

Composition

Krackle and similar soils—40 percent
Baconcamp and similar soils—30 percent
Hackwood and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Position on landform: Krackle—south- and west-facing side slopes; Baconcamp—north- and east-facing side slopes and convex slopes; Hackwood—north- and east-facing footslopes and concave slopes
Parent material: Krackle and Baconcamp—colluvium; Hackwood—loess and colluvium
Geology: Basalt and andesite
Elevation: 5,400 to 8,200 feet
Rangeland ecological site and characteristic vegetation: Krackle—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass; Baconcamp—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Hackwood—(Aspen 16-35PZ) quaking aspen, whortleleaf snowberry, sedge
Climatic factors:
Mean annual precipitation—14 to 25 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Krackle

0 to 4 inches—grayish brown cobbly clay loam
4 to 15 inches—brown very stony clay loam
15 to 30 inches—yellowish brown very stony clay loam
30 inches—fractured basalt

Properties and Qualities of Krackle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown stony loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Hackwood

0 to 11 inches—brown gravelly loam
11 to 23 inches—brown loam
23 to 48 inches—brown gravelly loam
48 to 60 inches—light yellowish brown gravelly loam

Properties and Qualities of Hackwood

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Hapgood, Pearlwise, and Leemorris soils on side slopes
- Rock outcrop

Major Soil Limitations

Krackle, Baconcamp, and Hackwood—water erosion, slope, cold climate
Krackle and Baconcamp—depth to bedrock
Hackwood—seepage

Use and Management

Livestock Grazing

Krackle, Baconcamp, and Hackwood
- Construction of waterbars prevents gullying on roads, trails, and pipelines.

- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is fair because of the short growing season and steepness of slope.

Krackle and Baconcamp
- Depth to bedrock limits the construction of water impoundments.

Krackle
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.

Baconcamp
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.

Hackwood
- The risk of seepage limits the construction of water impoundments.
- Excessive use of aspen reduces its productivity and potential for regeneration.
- As the site deteriorates, shrubs and forbs increase and needlegrasses decrease.

160—Ladycomb cobbly clay loam, 8 to 25 percent slopes

Composition

Ladycomb and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt, andesite, and rhyolite
Elevation: 4,700 to 5,300 feet
Rangeland ecological site and characteristic vegetation: (Shrubby Loam 8-10PZ)
Wyoming big sagebrush, ephedra, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—grayish brown cobbly clay loam
2 to 8 inches—grayish brown clay loam
8 inches—highly fractured andesite

Soil Properties and Qualities

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Kerrfield soils on hills
- Bruncan soils on plateaus

Major Soil Limitations

Water erosion, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Thurber needlegrass and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

161—Lambranch gravelly loam, 2 to 8 percent slopes

Composition

Lambranch and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Plane and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,600 to 4,100 feet
Rangeland ecological site and characteristic vegetation: (JD Loamy Fan 9-12PZ)
basin big sagebrush, bluebunch wheatgrass, basin wildrye, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—grayish brown gravelly loam
3 to 7 inches—grayish brown clay loam
7 to 19 inches—brown very gravelly clay and very cobbly sandy clay loam
19 to 27 inches—dark brown very gravelly clay
27 to 60 inches—pale brown very gravelly clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 5 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Loupence, Final, and Wenas soils on stream terraces
- Poall soils on hills

Major Soil Limitation

Shrink-swell potential

Use and Management

Livestock Grazing

- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and basin wildrye, bluebunch wheatgrass, and needlegrasses decrease.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production.
- The suitability for seeding is good.

162—Lambring-Egyptcreek-Rock outcrop complex, 20 to 60 percent slopes

Composition

Lambring and similar soils—40 percent
Egyptcreek and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Welded tuff
Elevation: 4,200 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Lambring—(SR Mahogany Rockland 12+PZ) curl-leaf mountain mahogany, western juniper, antelope bitterbrush, bluebunch wheatgrass, Idaho fescue
Forestland plant association and characteristic vegetation: Egyptcreek—(ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass) ponderosa pine, antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 18 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained

Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Egyptcreek

1 inch to 0—slightly decomposed needles and twigs
0 to 8 inches—grayish brown very stony loam
8 to 18 inches—yellowish brown very gravelly loam
18 to 24 inches—yellowish brown extremely cobbly loam
24 inches—fractured welded tuff

Properties and Qualities of Egyptcreek

Depth: 20 to 36 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Erakatak and Observation soils on hills
- Roschene soils on stream terraces
- Soils that are similar to Hackwood soils and are in concave areas of mountains

Major Soil Limitations

Lambring and Egyptcreek—water erosion, slope, surface stones
Egyptcreek—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Lambring and Egyptcreek
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- The suitability for seeding is very poor because of the steepness of slope and surface stones.

Lambring
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

Egyptcreek
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

Forest Products

Egyptcreek
- The steepness of slope and surface stones make landings and roads very difficult to construct.
- The steepness of slope limits the use of wheeled or tracked equipment.
- The steepness of slope prevents deep mechanical site preparation and mechanical planting.
- Planting by hand is difficult because of the steepness of slope and surface stones.

- The seedling mortality rate is high because of the low available water capacity.
- Because of the surface stones, fires of moderate fireline intensity may damage the soil. Consider alternative techniques if prescribed burning is used.

163—Lambring-Rock outcrop complex, 30 to 70 percent north slopes

Composition

Lambring, thick surface, and similar soils—40 percent
Lambring, thin surface, and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: North- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 6,100 to 6,500 feet
Rangeland ecological site and characteristic vegetation: Lambring, thick surface—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Lambring, thin surface—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Lambring, Thick Surface

0 to 10 inches—dark grayish brown very gravelly loam
10 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Typical Profile of Lambring, Thin Surface

0 to 7 inches—dark grayish brown very gravelly loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring, Thick and Thin Surface

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Ninemile soils on hills
- Fitzwater soils on south-facing side slopes of hills and mountains

Major Soil Limitations

Water erosion, slope

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and the areas of Rock outcrop restrict the operation of ground seeding equipment.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The suitability for seeding is very poor because of the steepness of slope.

164—Lambring-Rubble land complex, 30 to 50 percent slopes

Composition

Lambring and similar soils—50 percent
Rubble land—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and mountains
Slope features: Concave and convex
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 5,000 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Lambring—(SR Mahogany Rockland 12+PZ) curl-leaf mountain mahogany, western juniper, antelope bitterbrush, bluebunch wheatgrass, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 18 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Lambring

0 to 7 inches—dark grayish brown extremely stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Erakatak, Gaib, and Ticino soils on hills
- Roschene soils on stream terraces
- Soils that are similar to Hackwood soils and are on mountains

Major Soil Limitations

Water erosion, slope, surface stones

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment and limit livestock movement and the distribution of grazing.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones and steepness of slope.

165—Langslet silty clay, 0 to 2 percent slopes

Composition

Langslet and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Clay Basin 6-8PZ) shadscale, bud sagebrush, bottlebrush squirreltail
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 7 inches—light gray silty clay
7 to 14 inches—light brownish gray silty clay
14 to 23 inches—light brownish gray sandy clay loam
23 to 37 inches—pale brown clay loam
37 to 49 inches—very pale brown silty clay
49 to 62 inches—pale brown sandy clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Potential frost action: High

Contrasting Inclusions

- Defenbaugh soils on alluvial fans
- Helphenstein and Ozamis soils on lake plains

Major Soil Limitations

Wetness, shrink-swell potential

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The soil expands when wet and contracts when dry, which may damage structures and fences.
- This unit is suited to grazing in winter.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, shadscale increases and bottlebrush squirreltail decreases.
- The suitability for seeding is very poor because of droughtiness.

166—Lava flows

Composition

Lava flows—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Basalt flow pressure ridges at the periphery of Diamond Craters
Geology: Basalt
Elevation: 4,100 to 4,300 feet
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Contrasting Inclusions

- Flank, Pomerening, and Srednic soils on hills

Major Uses

Watershed, wildlife habitat

167—Lava flows-Flank complex, 1 to 40 percent slopes

Composition

Lava flows—55 percent
Flank and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills near Diamond Craters
Position on landform: Flank—pressure ridges with slopes of 2 to 40 percent; Flank—hillsides with slopes of 1 to 10 percent
Parent material: Flank—cinders and ash
Geology: Basalt
Elevation: 4,100 to 4,300 feet

Rangeland ecological site and characteristic vegetation: Flank—(Shallow Lava 10-12PZ) basin big sagebrush, Thurber needlegrass, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Flank

0 to 1 inch—dark grayish brown very gravelly sandy loam
1 to 9 inches—dark brown very gravelly sandy loam
9 inches—basalt

Properties and Qualities of Flank

Depth: 4 to 15 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Pomerening soils on hills

Major Soil Limitations

Flank—available water capacity, depth to bedrock

Use and Management

Livestock Grazing

- Lava flows restrict livestock movement.
- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the Flank soil is saturated following snowmelt.
- The Flank soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

168—Lawen fine sandy loam, 2 to 5 percent slopes

Composition

Lawen and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet

Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ)
basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 10 inches—brown fine sandy loam
10 to 15 inches—brown loam
15 to 60 inches—pale brown fine sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Poujade and Windybutte soils on lake terraces
- Ausmus soils on lake plains

Major Soil Limitations

Wind erosion, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is good.

Irrigated Hayland

- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to this soil.
- This soil is well suited to use as irrigated hayland.

169—Leathers silt loam, 0 to 2 percent slopes

Composition

Leathers and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane and concave
Parent material: Lacustrine sediment
Geology: Mixed igneous rock
Elevation: 4,100 to 4,200 feet

Rangeland ecological site and characteristic vegetation: (Dry Sodic Floodplain) black greasewood, basin big sagebrush, inland saltgrass, basin wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 9 inches—light brownish gray silt loam
9 to 13 inches—pale brown loam
13 to 24 inches—very pale brown sandy loam
24 to 28 inches—light gray loam
28 to 46 inches—light brownish gray loamy fine sand
46 to 52 inches—very pale brown loam
52 to 61 inches—very pale brown sand

Soil Properties and Qualities

Depth: 40 to 60 inches or more to sand layer and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Poujade and Windybutte soils on lake terraces
- Ausmus soils on lake plains

Major Soil Limitations

Salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, rabbitbrush, and bottlebrush squirreltail increase and inland saltgrass and basin wildrye decrease.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

170—Leathers silt loam, 1 to 3 percent slopes

Composition

Leathers and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces

Slope features: Plane
Parent material: Lacustrine sediment
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Low Sodic Terrace 6-10PZ) black greasewood, shadscale, spiny hopsage, bottlebrush squirreltail, bud sagebrush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 9 inches—light brownish gray silt loam
9 to 13 inches—pale brown loam
13 to 24 inches—very pale brown sandy loam
24 to 28 inches—light gray loam
28 to 46 inches—light brownish gray loamy fine sand
46 to 52 inches—very pale brown loam
52 to 61 inches—very pale brown sand

Soil Properties and Qualities

Depth: 40 to 60 inches or more to sand layer and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Poujade soils on lake terraces
- Ausmus and Lolak soils on lake plains
- Goldrun soils on sand dunes

Major Soil Limitations

Salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale, black greasewood, and bottlebrush squirreltail increase and bud sagebrush, basin wildrye, and beardless wildrye decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

171—Leemorris-Buckwilder complex, 3 to 15 percent slopes

Composition

Leemorris and similar soils—50 percent
Buckwilder and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 6,000 to 7,200 feet
Rangeland ecological site and characteristic vegetation: Leemorris—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass; Buckwilder—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 25 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Leemorris

0 to 5 inches—very dark grayish brown gravelly clay loam
5 to 26 inches—dark grayish brown gravelly clay loam
26 to 30 inches—dark yellowish brown gravelly clay
30 inches—basalt

Properties and Qualities of Leemorris

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Potential frost action: High

Typical Profile of Buckwilder

0 to 8 inches—grayish brown very cobbly clay loam
8 to 21 inches—brown clay
21 to 27 inches—dark yellowish brown cobbly clay
27 inches—fractured basalt

Properties and Qualities of Buckwilder

Depth: 6 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Pearlwise soils on plateaus
- Welch soils along drainageways
- Rock outcrop

Major Soil Limitations

Leemorris and Buckwilder—water erosion, depth to bedrock, shrink-swell potential, cold climate, frost action
Buckwilder—depth to a claypan, surface rock fragments, corrosivity

Use and Management

Livestock Grazing

Leemorris and Buckwilder
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Leemorris
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the short growing season.

Buckwilder
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of depth to the claypan, surface rock fragments, and short growing season.

172—Leemorris-Buckwilder complex, 15 to 35 percent slopes

Composition

Leemorris and similar soils—50 percent
Buckwilder and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains (fig. 7)
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 6,000 to 7,200 feet
Rangeland ecological site and characteristic vegetation: Leemorris—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass;



Figure 7.—View of Pueblo Mountains. Leemorris-Buckwilder complex, 15 to 35 percent slopes, in foreground, and Baconcamp-Rock outcrop complex, 30 to 70 percent north slopes, in background.

Buckwilder—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 25 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Leemorris

0 to 5 inches—very dark grayish brown gravelly clay loam
5 to 26 inches—dark grayish brown gravelly clay loam
26 to 30 inches—dark yellowish brown gravelly clay
30 inches—basalt

Properties and Qualities of Leemorris

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Potential frost action: High

Typical Profile of Buckwilder

0 to 8 inches—grayish brown very cobbly clay loam
8 to 21 inches—brown clay
21 to 27 inches—dark yellowish brown cobbly clay
27 inches—fractured basalt

Properties and Qualities of Buckwilder

Depth: 6 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Baconcamp soils on mountains
- Rock outcrop

Major Soil Limitations

Leemorris and Buckwilder—water erosion, depth to bedrock, shrink-swell potential, cold climate, frost action
Buckwilder—depth to a claypan, surface rock fragments, corrosivity

Use and Management

Livestock Grazing

Leemorris and Buckwilder
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.

Leemorris
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the short growing season.

Buckwilder
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the depth to the claypan, surface rock fragments, and short growing season.

173—Legler silty clay loam, 0 to 3 percent slopes

Composition

Legler and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Concave
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Swale 9-12PZ) basin big sagebrush, basin wildrye, bluebunch wheatgrass, needleandthread
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 4 inches—yellowish brown silty clay loam
4 to 45 inches—yellowish brown silty clay loam
45 to 62 inches—light yellowish brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Frequency of flooding: Rare
Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Lambranch soils on alluvial fans
- Loupence soils on stream terraces
- Risley and Poall soils on hills

Major Soil Limitation

Corrosivity

Use and Management

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and basin wildrye, bluebunch wheatgrass, and needlegrasses decrease.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production.
- The suitability for seeding is good.

174—Locane very cobbly loam, 5 to 25 percent slopes

Composition

Locane and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt and welded tuff
Elevation: 4,800 to 6,500 feet
Rangeland ecological site and characteristic vegetation: (Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—light brownish gray very cobbly loam
7 to 15 inches—brown very cobbly clay loam
15 inches—welded tuff

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Reluctan and Anawalt soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Available water capacity, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

175—Lolak very fine sandy loam, 0 to 1 percent slopes

Composition

Lolak and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—light gray very fine sandy loam
3 to 10 inches—light brownish gray clay loam
10 to 19 inches—light brownish gray clay
19 to 40 inches—light brownish gray silty clay loam
40 to 60 inches—light gray loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Very slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: Moderate

Contrasting Inclusions

- Ausmus, Crowcamp, Poujade, and Skidoosprings soils on higher lake terraces

Major Soil Limitations

Wind erosion, wetness, shrink-swell potential, alkalinity, corrosivity

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Black greasewood invades when ponding is less frequent.
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the strong alkalinity.

176—Lolak-Ausmus complex, 0 to 1 percent slopes

Composition

Lolak and similar soils—50 percent
Ausmus and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Lolak—(Sodic Meadow) alkali sacaton, Sandberg bluegrass, inland saltgrass; Ausmus—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Lolak

0 to 3 inches—light gray very fine sandy loam
3 to 10 inches—light brownish gray clay loam
10 to 19 inches—light brownish gray clay loam and clay
19 to 40 inches—light brownish gray silty clay loam
40 to 60 inches—light gray loam

Properties and Qualities of Lolak

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter and in spring
Permeability: Very slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Ausmus

0 to 2 inches—light brownish gray fine sandy loam
2 to 16 inches—light brownish gray silty clay loam
16 to 29 inches—light brownish gray silt loam
29 to 69 inches—light yellowish brown loam

Properties and Qualities of Ausmus

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Crowcamp soils on lake plains
- Poujade and Voltage soils on low lake terraces

Major Soil Limitations

Lolak and Ausmus—wetness, alkalinity, corrosivity, wind erosion
Lolak—shrink-swell potential
Ausmus—salinity

Use and Management

Livestock Grazing

Lolak and Ausmus

- Excess salts and sodium in the soils result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.

Lolak

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of the strong alkalinity.

Ausmus

- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

177—Lonely-Doyn association, 2 to 20 percent slopes

Composition

Lonely and similar soils—50 percent
Doyn and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Lonely—concave areas with slopes of 2 to 10 percent; Doyn—convex areas with slopes of 8 to 20 percent
Parent material: Lonely—colluvium; Doyn—residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,300 to 5,700 feet
Rangeland ecological site and characteristic vegetation: Lonely and Doyn—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Lonely

0 to 4 inches—pale brown sandy clay loam
4 to 16 inches—pale brown clay loam
16 to 24 inches—light brownish gray gravelly clay loam
24 inches—andesite

Properties and Qualities of Lonely

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Doyn

0 to 2 inches—brown sandy clay loam
2 to 8 inches—brown cobbly loam
8 inches—basalt

Properties and Qualities of Doyn

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Rock outcrop
- Actem soils on hills and plateaus

Major Soil Limitations

Lonely and Doyn—depth to bedrock
Doyn—water erosion, available water capacity

Use and Management

Livestock Grazing

Lonely and Doyn

- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

Lonely

- The suitability for seeding is good.

Doyn

- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

178—Lonely-Robson association, 5 to 25 percent slopes

Composition

Lonely and similar soils—50 percent
Robson and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Lonely—side slopes of 12 to 25 percent; Robson—ridges with slopes of 5 to 15 percent
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Lonely—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass; Robson—(Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Lonely

0 to 4 inches—pale brown cobbly clay loam
4 to 16 inches—pale brown clay loam
16 to 24 inches—light brownish gray gravelly clay loam
24 inches—andesite

Properties and Qualities of Lonely

Depth: 20 to 40 inches to bedrock

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Robson

0 to 4 inches—light brownish gray very cobbly clay loam
4 to 13 inches—brown very gravelly clay
13 inches—basalt

Properties and Qualities of Robson

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Rock outcrop
- Fourwheel soils on hills

Major Soil Limitations

Lonely and Robson—depth to bedrock
Lonely—water erosion, surface rock fragments
Robson—available water capacity, shrink-swell potential

Use and Management

Livestock Grazing

Lonely and Robson
- Depth to bedrock limits the construction of water impoundments.

Lonely
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover reduces the risk of water erosion.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the surface rock fragments.

Robson
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity.

179—Longcreek-Cleavage complex, 20 to 50 percent slopes

Composition

Longcreek and similar soils—45 percent
Cleavage and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Longcreek—south- and west-facing side slopes; Cleavage—north- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,400 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Longcreek—(Droughty South Slopes 11-13PZ) basin big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Cleavage—(Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—43 to 49 degrees F
Frost-free period—50 to 100 days

Typical Profile of Longcreek

0 to 3 inches—dark grayish brown very cobbly loam
3 to 7 inches—brown very cobbly loam
7 to 11 inches—brown very cobbly clay loam
11 to 18 inches—brown very cobbly clay
18 inches—fractured andesite

Properties and Qualities of Longcreek

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Cleavage

0 to 7 inches—dark grayish brown extremely gravelly loam
7 to 15 inches—brown very cobbly clay loam
15 inches—fractured bedrock

Properties and Qualities of Cleavage

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Ninemile soils on mountains
- Baconcamp soils on steep, north-facing mountainsides
- Pearlwise soils on north-facing mountainsides
- Rock outcrop

Major Soil Limitations

Longcreek and Cleavage—water erosion, slope, depth to bedrock, available water capacity
Longcreek—shrink-swell potential

Use and Management

Livestock Grazing

Longcreek and Cleavage
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- These soils are susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and steepness of slope.

Longcreek
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.

Cleavage
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.

180—Longcreek-Rock outcrop complex, 40 to 70 percent south slopes

Composition

Longcreek and similar soils—75 percent
Rock outcrop—10 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,300 to 6,400 feet
Rangeland ecological site and characteristic vegetation: Longcreek—(Droughty South Slopes 11-13PZ) basin big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Longcreek

0 to 3 inches—dark grayish brown very cobbly loam
3 to 7 inches—brown very cobbly loam
7 to 11 inches—brown very cobbly clay loam
11 to 18 inches—brown very cobbly clay
18 inches—fractured andesite

Properties and Qualities of Longcreek

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Cleavage, Carryback, and Pearlwise soils on mountains

Major Soil Limitations

Longcreek—water erosion, slope, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope and low available water capacity.

181—Loupence silt loam, 0 to 2 percent slopes

Composition

Loupence and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Plane

Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,500 to 3,800 feet
Rangeland ecological site and characteristic vegetation: (Loamy Bottom) basin wildrye
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 49 inches—grayish brown silt loam
49 to 60 inches—brown sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present late in winter through early in summer
Flooding: Present in spring
Permeability: Moderate
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Wenas soils in depressions of stream terraces
- Cumulic Haploxerolls adjacent to streams
- Final soils on stream terraces

Major Soil Limitations

Wetness, corrosivity, frost action

Use and Management

Irrigated Hayland

- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Flooding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted soil surface layer may lead to excessive runoff and restricted plant growth.
- The seasonal high water table provides supplemental water for adapted plants.
- This unit provides food and cover important for wildlife.
- Flooding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Livestock Grazing

- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.

- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- As the site deteriorates, big sagebrush and bluegrasses increase and basin wildrye and willows decrease.
- The suitability for seeding is good.

182—Madeline very stony loam, 15 to 40 percent south slopes

Composition

Madeline and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Rhyolite, andesite, welded tuff, and basalt
Elevation: 3,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—reddish brown very stony loam
2 to 10 inches—reddish brown clay loam
10 to 19 inches—reddish brown cobbly clay loam
19 inches—rhyolite

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Fitzwater soils on steep, north-facing hillsides

- Carryback and Ninemile soils on hills
- Rock outcrop

Major Soil Limitations

Depth to bedrock, water erosion, surface stones, available water capacity, slope, shrink-swell potential

Use and Management

Livestock Grazing

- Steepness of slope and surface stones restrict the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

183—Madeline very stony loam, 20 to 60 percent north slopes

Composition

Madeline and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Rhyolite, andesite, welded tuff, and basalt
Elevation: 3,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—reddish brown very stony loam
2 to 10 inches—reddish brown clay loam
10 to 19 inches—reddish brown cobbly clay loam
19 inches—rhyolite

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Felcher soils on south-facing hillsides
- Carryback and Ninemile soils on hills
- Rock outcrop

Major Soil Limitations

Depth to bedrock, water erosion, surface stones, slope, available water capacity, shrink-swell potential

Use and Management

Livestock Grazing

- Steepness of slope and surface stones restrict the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass and western juniper.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

184—Madeline-Ninemile complex, 15 to 35 percent slopes

Composition

Madeline and similar soils—45 percent
Ninemile and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Madeline—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass;

Ninemile—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic factors:

Mean annual precipitation—10 to 12 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Madeline

0 to 2 inches—reddish brown gravelly clay loam
2 to 10 inches—reddish brown clay loam
10 to 19 inches—reddish brown cobbly clay loam
19 inches—rhyolite

Properties and Qualities of Madeline

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Westbutte soils on north-facing hillsides
- Carryback soils on hills
- Rock outcrop

Major Soil Limitations

Madeline and Ninemile—water erosion, shrink-swell potential, depth to bedrock, available water capacity
Ninemile—depth to a claypan, surface rock fragments

Use and Management

Livestock Grazing

Madeline and Ninemile

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

- The upper part of the soils is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- These soils are susceptible to invasion by cheatgrass and medusahead.

Madeline
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity.

Ninemile
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

185—Madeline-Rock outcrop complex, 40 to 70 percent slopes

Composition

Madeline and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and mountains
Position on landform: Side slopes
Parent material: Colluvium and residuum
Geology: Rhyolite, andesite, welded tuff, and basalt
Elevation: 3,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Madeline—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Madeline

0 to 2 inches—reddish brown very stony loam
2 to 10 inches—reddish brown clay loam
10 to 19 inches—reddish brown cobbly clay loam
19 inches—rhyolite

Properties and Qualities of Madeline

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Westbutte soils on north-facing hillsides and mountainsides
- Carryback and Ninemile soils on hills

Major Soil Limitations

Slope, surface stones, depth to bedrock, water erosion, available water capacity, shrink-swell potential

Use and Management

Livestock Grazing

- Steepness of slope, surface stones, and areas of Rock outcrop restrict the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

186—Mahoon very cobbly loam, 2 to 20 percent slopes

Composition

Mahoon and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Clayey 9-12PZ) bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Mahoon

0 to 3 inches—grayish brown very cobbly loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay
18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Drewsey and Risley soils on hills
- Rock outcrop

Major Soil Limitations

Surface rock fragments, depth to bedrock, shrink-swell potential, depth to a claypan, corrosivity

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan and surface rock fragments.

187—Mahoon-Brezniak-Longcreek complex, 2 to 20 percent slopes

Composition

Mahoon and similar soils—40 percent
Brezniak and similar soils—25 percent
Longcreek and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Mahoon—tuffaceous sedimentary rock and diatomaceous earth; Brezniak and Longcreek—basalt, andesite, and welded tuff
Elevation: 3,600 to 4,700 feet
Rangeland ecological site and characteristic vegetation: Mahoon—(SR Clayey 9-12PZ) bluebunch wheatgrass; Brezniak—(SR Very Shallow 9-12PZ) stiff sagebrush, Sandberg bluegrass, Idaho fescue; Longcreek—(JD Claypan 9-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass

Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Mahoon

0 to 3 inches—grayish brown very cobbly loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay
18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Brezniak

0 to 3 inches—brown cobbly loam
3 to 7 inches—brown clay
7 to 10 inches—reddish yellow clay
10 inches—fractured basalt

Properties and Qualities of Brezniak

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Longcreek

0 to 3 inches—dark grayish brown gravelly loam
3 to 7 inches—brown gravelly loam
7 to 11 inches—brown very cobbly clay loam
11 to 18 inches—brown very cobbly clay
18 inches—fractured andesite

Properties and Qualities of Longcreek

Depth: 3 to 12 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Bucklake soils on steep, north-facing hillsides
- Drewsey soils on hills
- Rock outcrop

Major Soil Limitations

Mahoon, Brezniak, and Longcreek—depth to bedrock, shrink-swell potential
Mahoon and Longcreek—depth to a claypan
Brezniak and Longcreek—available water capacity
Mahoon—corrosivity, surface rock fragments

Use and Management

Livestock Grazing

Mahoon, Brezniak, and Longcreek
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

Mahoon and Longcreek
- The claypan restricts the rooting depth.
- The upper part of the soils is saturated following snowmelt.

Mahoon
- Because of the corrosivity to uncoated steel, noncorrosive material and treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan and surface rock fragments.

Brezniak
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and depth to bedrock.

Longcreek
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity and depth to the claypan.

188—Mahoon-Cagle complex, 10 to 40 percent slopes

Composition

Mahoon and similar soils—65 percent
Cagle and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills

Position on landform: Mahoon—side slopes and footslopes of 10 to 20 percent; Cagle—north- and east-facing side slopes of 20 to 40 percent
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Mahoon—(SR Clayey 9-12PZ) bluebunch wheatgrass; Cagle—(SR Mountain North 9-12PZ) Idaho fescue
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Mahoon

0 to 3 inches—grayish brown very cobbly loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay
18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Cagle

0 to 4 inches—brown very stony clay loam
4 to 12 inches—brown clay
12 to 24 inches—yellowish brown clay
24 to 36 inches—yellowish brown clay loam
36 inches—tuffaceous sedimentary rock

Properties and Qualities of Cagle

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Drewsey and Risley soils on hills
- Rock outcrop

Major Soil Limitations

Mahoon and Cagle—depth to bedrock, shrink-swell potential
Mahoon—depth to a claypan, corrosivity, surface rock fragments
Cagle—surface stones, water erosion

Use and Management

Livestock Grazing

Mahoon and Cagle
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Mahoon
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan and surface rock fragments.

Cagle
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the surface stones.

189—Mahoon-Risley complex, 2 to 20 percent slopes

Composition

Mahoon and similar soils—50 percent
Risley and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,700 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Mahoon—(SR Clayey 9-12PZ) bluebunch wheatgrass; Risley—(JD Claypan 9-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Mahoon

0 to 3 inches—grayish brown silt loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay

18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Risley

0 to 3 inches—light brownish gray very gravelly loam
3 to 12 inches—grayish brown clay
12 to 25 inches—light olive brown gravelly clay
25 to 37 inches—light yellowish brown gravelly clay loam
37 to 39 inches—pale yellow very gravelly sandy clay loam
39 inches—tuffaceous sedimentary rock

Properties and Qualities of Risley

Depth: 1 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Bucklake soils on steep, north-facing hillsides
- Gumble and Drewsey soils on hills
- Rock outcrop

Major Soil Limitations

Mahoon and Risley—depth to bedrock, depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

Mahoon and Risley

- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soils is saturated following snowmelt.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- These soils are susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan.

Mahoon

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.

Risley
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.

190—Mahoon-Cotant association, 15 to 30 percent slopes

Composition

Mahoon and similar soils—50 percent
Cotant and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Mahoon—south- and west-facing side slopes; Cotant—north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,800 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Mahoon—(SR Clayey South 8-12PZ) bluebunch wheatgrass; Cotant—(SR Mountain North 9-12PZ) Idaho fescue
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—50 to 100 days

Typical Profile of Mahoon

0 to 3 inches—grayish brown very gravelly loam
3 to 9 inches—grayish brown gravelly clay
9 to 18 inches—brown gravelly clay
18 to 25 inches—pale brown gravelly clay
25 inches—diatomaceous earth

Properties and Qualities of Mahoon

Depth: 2 to 10 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Cotant

0 to 3 inches—grayish brown stony loam
3 to 13 inches—grayish brown clay
13 inches—weathered tuffaceous sedimentary rock

Properties and Qualities of Cotant

Depth: 2 to 10 inches to a claypan and 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches

Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Drewsey, Risley, and Poall soils on hills
- Rock outcrop

Major Soil Limitations

Mahoon and Cotant—water erosion, depth to bedrock, depth to a claypan, shrink-swell potential
Mahoon—corrosivity
Cotant—available water capacity

Use and Management

Livestock Grazing

Mahoon and Cotant
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- The claypan restricts the rooting depth.
- The upper part of the soils is saturated following snowmelt.

Mahoon
- Depth to bedrock limits the construction of water impoundments.
- Because of the high corrosivity to steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan.

Cotant
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and depth to the claypan.

191—Mcbain-Ausmus complex, 0 to 2 percent slopes

Composition

Mcbain and similar soils—45 percent
Ausmus and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mcbain—low lake terraces; Ausmus—lake plains
Slope features: Mcbain—convex; Ausmus—plane and concave
Parent material: Lacustrine sediment

Elevation: 4,100 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Mcbain—(Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye; Ausmus—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Mcbain

0 to 5 inches—light brownish gray silt loam
5 to 22 inches—pale brown and light gray loam
22 to 27 inches—light brownish gray clay loam
27 to 37 inches—pale brown very fine sandy loam
37 to 43 inches—grayish brown clay loam
43 to 60 inches—pale brown loam

Properties and Qualities of Mcbain

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Ausmus

0 to 2 inches—light brownish gray fine sandy loam
2 to 16 inches—light brownish gray silty clay loam
16 to 29 inches—light brownish gray silt loam
29 to 69 inches—light yellowish brown loam

Properties and Qualities of Ausmus

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Fury, Housefield, and Skunkfarm soils on lake plains

Major Soil Limitations

Mcbain and Ausmus—salinity, alkalinity, corrosivity
Ausmus—wind erosion, wetness

Use and Management

Livestock Grazing

Mcbain and Ausmus

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Mcbain

- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

Ausmus

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

192—McConnel cobbly sandy loam, 3 to 8 percent slopes

Composition

McConnel and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—grayish brown cobbly sandy loam
3 to 11 inches—brown gravelly sandy loam
11 to 25 inches—brown very cobbly loamy sand
25 to 52 inches—brown extremely cobbly loamy sand
52 to 62 inches—brown extremely gravelly loamy sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Droval soils on lake plains
- Outerkirk soils on alluvial fans

Major Soil Limitations

Available water capacity, corrosivity, wind erosion, seepage

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

193—Merlin very stony loam, 2 to 15 percent slopes

Composition

Merlin and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, welded tuff, and andesite
Elevation: 4,600 to 5,200 feet
Rangeland ecological site and characteristic vegetation: (JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—brown very stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Soil Properties and Qualities

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Observation, Teguro, and Vitale soils on hills and plateaus
- Gaib soils on hills
- Roschene soils on stream terraces
- Rock outcrop and Rubble land

Major Soil Limitations

Surface stones, depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity, depth to a claypan, and surface stones.

194—Merlin complex, 2 to 20 percent slopes

Composition

Merlin, very stony, and similar soils—50 percent
Merlin, very cobbly, and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and loess
Geology: Basalt, welded tuff, and ashflow tuff
Elevation: 4,600 to 5,300 feet
Rangeland ecological site and characteristic vegetation: Merlin, very stony—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass; Merlin, very cobbly—(JD Shrubby Mountain Claypan 12-16) antelope bitterbrush, low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin, Very Stony

0 to 7 inches—brown very stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Typical Profile of Merlin, Very Cobbly

0 to 7 inches—brown very cobbly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin, Very Stony and Very Cobbly

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Erakatak, Gaib, and Vitale soils on hills
- Roschene soils in swales and drainageways
- Doyn and Ticino soils on hills and plateaus
- Rock outcrop and Rubble land

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity, surface rock fragments

Use and Management

Livestock Grazing

Merlin, very stony and very cobbly

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The claypan restricts the rooting depth.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Merlin, very stony

- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

Merlin, very cobbly

- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, onespike oatgrass, and antelope bitterbrush decrease.

195—Merlin-Ateron complex, 2 to 20 percent slopes

Composition

Merlin and similar soils—60 percent
Ateron and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,800 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Ateron—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very cobbly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Ateron

0 to 5 inches—dark grayish brown gravelly loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Erakatak, Gaib, Ticino, and Vitale soils on hills
- Roschene soils in swales and drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Merlin and Ateron—available water capacity, depth to bedrock, depth to a claypan, shrink-swell potential
Merlin—surface rock fragments

Use and Management

Livestock Grazing

Merlin and Ateron
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Merlin
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Ateron
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is poor because of the low available water capacity.

196—Merlin-Ateron-Rubble land complex, 2 to 20 percent slopes

Composition

Merlin and similar soils—40 percent
Ateron and similar soils—35 percent
Rubble land—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff

Elevation: 3,900 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Ateron—(SR Mountain Very Shallow 12-16PZ) stiff sagebrush, onespike oatgrass, Sandberg bluegrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very stony clay loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Ateron

0 to 5 inches—dark grayish brown very cobbly loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Erakatak, Gaib, and Vitale soils on hills
- Roschene soils in swales and drainageways

Major Soil Limitations

Merlin and Ateron—available water capacity, depth to bedrock, shrink-swell potential
Merlin—surface stones, depth to a claypan
Ateron—surface rock fragments

Use and Management

Livestock Grazing

Merlin and Ateron

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

- The upper part of the soils is saturated following snowmelt.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Merlin
- The very stony surface layer restricts the operation of ground seeding equipment.
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface stones.
- This soil is susceptible to invasion by western juniper.

Ateron
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

197—Merlin-Ateron-Ticino complex, 2 to 20 percent slopes

Composition

Merlin and similar soils—35 percent
Ateron and similar soils—30 percent
Ticino and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Merlin and Ateron—residuum and colluvium; Ticino—residuum
Geology: Merlin—basalt and welded tuff; Ateron—basalt, andesite, and welded tuff; Ticino—welded tuff
Elevation: 3,900 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Ateron—(SR Mountain Very Shallow 12-16PZ) stiff sagebrush, onespike oatgrass, Sandberg bluegrass, Idaho fescue; Ticino—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very cobbly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Ateron

0 to 5 inches—dark grayish brown very stony loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Ticino

0 to 9 inches—dark grayish brown very cobbly loam
9 to 26 inches—pale brown sandy clay loam
26 to 29 inches—very pale brown weathered tuff
29 inches—fractured welded tuff

Properties and Qualities of Ticino

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Doyn, Erakatak, Gaib, and Vitale soils on hills
- Roschene soils in swales and drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Merlin, Ateron, and Ticino—available water capacity, depth to bedrock, surface rock fragments
Merlin and Ateron—shrink-swell potential
Merlin—depth to a claypan

Use and Management

Livestock Grazing

Merlin, Ateron, and Ticino
- Depth to bedrock limits the construction of water impoundments.

Merlin and Ateron
- The upper part of the soils is saturated following snowmelt.

- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Merlin
- The claypan restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Ateron
- The very stony surface layer restricts the operation of ground seeding equipment.
- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Ticino
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

198—Merlin-Erakatak-Teguro complex, 2 to 20 percent slopes

Composition

Merlin and similar soils—35 percent
Erakatak and similar soils—30 percent
Teguro and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,700 to 4,900 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Erakatak—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass; Teguro—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Erakatak

0 to 7 inches—grayish brown and brown very cobbly loam
7 to 16 inches—brown very cobbly clay loam
16 to 25 inches—light yellowish brown very cobbly clay
25 inches—fractured welded tuff

Properties and Qualities of Erakatak

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Teguro

0 to 2 inches—grayish brown very gravelly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Anatone, Doyn, and Gaib soils on hills
- Rock outcrop

Major Soil Limitations

Merlin, Erakatak, and Teguro—available water capacity, depth to bedrock

Merlin and Erakatak—shrink-swell potential
Merlin—surface stones, depth to a claypan

Use and Management

Livestock Grazing

Merlin, Erakatak, and Teguro
- Depth to bedrock limits the construction of water impoundments.

Merlin and Erakatak
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Merlin and Teguro
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The suitability for seeding is poor because of the low available water capacity and depth to bedrock.

Merlin
- The very stony surface layer restricts the operation of ground seeding equipment.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is very poor because of the depth to the claypan, depth to bedrock, and surface stones.

Erakatak
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.

Teguro
- The depth to bedrock restricts the rooting depth.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

199—Merlin-Observation complex, 2 to 20 percent slopes

Composition

Merlin and similar soils—50 percent
Observation and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium

Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass; Observation—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very cobbly clay loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Observation

0 to 4 inches—dark grayish brown very stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Anatone soils on south-facing hillsides
- Westbutte soils on north-facing hillsides
- Roschene soils on stream terraces
- Gaib soils on hills
- Rock outcrop and Rubble land

Major Soil Limitations

Merlin and Observation—depth to bedrock, shrink-swell potential
Merlin—depth to a claypan, available water capacity, surface rock fragments
Observation—surface stones

Use and Management

Livestock Grazing

Merlin and Observation

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Merlin

- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Observation

- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the surface stones.

200—Merlin-Observation complex, 20 to 40 percent north slopes

Composition

Merlin and similar soils—60 percent
Observation and similar soils—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass; Observation—(SR Mountain North 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very cobbly clay loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Observation

0 to 4 inches—dark grayish brown very stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Anatone soils on south-facing hillsides
- Westbutte soils on north-facing hillsides
- Roschene soils on stream terraces
- Gaib soils on hills
- Rock outcrop and Rubble land

Major Soil Limitations

Merlin and Observation—water erosion, depth to bedrock, shrink-swell potential
Merlin—depth to a claypan, available water capacity, surface rock fragments
Observation—surface stones

Use and Management

Livestock Grazing

Merlin and Observation
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Depth to bedrock limits the construction of water impoundments.

Merlin
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.

- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Observation
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the surface stones.

201—Merlin-Rubble land complex, 2 to 15 percent slopes

Composition

Merlin and similar soils—70 percent
Rubble land—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, welded tuff, and andesite
Elevation: 4,300 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very stony clay loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Observation, Royst, and Vitale soils on hills and plateaus

Major Soil Limitations

Merlin—surface stones, depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, the soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface stones.

202—Merlin-Teguro complex, 2 to 15 percent slopes

Composition

Merlin and similar soils—55 percent
Teguro and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,400 to 5,500 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass; Teguro—(SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very gravelly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Teguro

0 to 2 inches—grayish brown very gravelly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Observation, Ticino, and Vitale soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Merlin and Teguro—depth to bedrock, available water capacity
Merlin—depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Merlin and Teguro

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

Merlin

- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity and depth to the claypan.

Teguro

- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is poor because of the low available water capacity.

203—Merlin-Teguro complex, very stony, 2 to 20 percent slopes

Composition

Merlin and similar soils—45 percent
Teguro and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,300 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass; Teguro—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Merlin

0 to 7 inches—brown very stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Teguro

0 to 2 inches—grayish brown very stony loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock

Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Observation soils on hills
- Royst and Vitale soils on hills and plateaus
- Lambring soils on north-facing mountainsides
- Rock outcrop

Major Soil Limitations

Merlin and Teguro—surface stones, depth to bedrock, available water capacity
Merlin—depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Merlin and Teguro
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Merlin
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface stones.

Teguro
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

204—Mesman loamy fine sand, 0 to 5 percent slopes

Composition

Mesman and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane

Parent material: Lacustrine sediment
Elevation: 4,400 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Sodic Dunes) basin big sagebrush, basin wildrye, black greasewood, Indian ricegrass, needleandthread
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 4 inches—light brownish gray loamy fine sand
4 to 12 inches—pale brown clay loam
12 to 26 inches—light brownish gray loam
26 to 62 inches—very pale brown clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—severe
Salinity: Strong
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Alvodest soils on lake plains
- Norad soils on lake terraces
- Playas on lake plains

Major Soil Limitations

Wind erosion, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Severe deterioration leads to unstable areas of windblown sand.
- As the site deteriorates, black greasewood and inland saltgrass increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, and Russian thistle.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

205—Mesman fine sandy loam, 0 to 5 percent slopes

Composition

Mesman and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,400 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 4 inches—light brownish gray fine sandy loam
4 to 12 inches—pale brown clay loam
12 to 26 inches—light brownish gray loam
26 to 62 inches—very pale brown clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Boravall soils on lake plains
- Enko soils on lake terraces
- Playas on lake plains

Major Soil Limitations

Wind erosion, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- This unit is suited to grazing in winter.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the strong salinity and alkalinity.

206—Mesman-Norad complex, 0 to 2 percent slopes

Composition

Mesman and similar soils—45 percent
Norad and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,400 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Mesman—(Sodic Terrace 6-10PZ) basin big sagebrush, spiny hopsage, black greasewood, Indian ricegrass; Norad—(Silty 6-10PZ) winterfat, sickle saltbush, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Mesman

0 to 4 inches—light brownish gray fine sandy loam
4 to 12 inches—pale brown clay loam
12 to 26 inches—light brownish gray loam
26 to 62 inches—very pale brown clay loam

Properties and Qualities of Mesman

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to steel: High

Typical Profile of Norad

0 to 3 inches—light brownish gray silt loam
3 to 7 inches—pale brown silty clay loam
7 to 23 inches—light brownish gray silty clay loam
23 to 34 inches—pale brown silty clay loam
34 to 46 inches—very pale brown silt loam
46 to 52 inches—white silt loam
52 to 61 inches—light gray loam

Properties and Qualities of Norad

Depth: More than 60 inches to bedrock

Drainage class: Well drained
Permeability: Slow
Available water capacity: About 13 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Alvodest and Icene soils on lake plains
- Playas on lake plains

Major Soil Limitations

Mesman and Norad—corrosivity
Mesman—wind erosion, salinity, alkalinity

Use and Management

Livestock Grazing

Mesman and Norad
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Mesman
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, big sagebrush, shadscale, and black greasewood increase and bud sagebrush, basin wildrye, and Indian ricegrass decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

Norad
- As the site deteriorates, shadscale and bottlebrush squirreltail increase and winterfat and Indian ricegrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

207—Middlebox gravelly sandy loam, 5 to 20 percent slopes

Composition

Middlebox and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Tuffaceous and pumiceous material
Elevation: 4,700 to 6,000 feet

Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—light brownish gray gravelly sandy loam
4 to 10 inches—pale brown very gravelly sandy clay loam
10 to 35 inches—pale brown very cobbly sandy clay loam
35 to 40 inches—weathered pumiceous tuff

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—moderate

Contrasting Inclusions

- Robson and Seharney soils on hills
- Felcher soils on south-facing hillsides
- Rock outcrop

Major Soil Limitations

Available water capacity, depth to bedrock, wind erosion

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of droughtiness.

208—Middlebox complex, 15 to 40 percent slopes

Composition

Middlebox, north slopes, and similar soils—60 percent
Middlebox, south slopes, and similar soils—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Middlebox, north slopes—north- and east-facing side slopes; Middlebox, south slopes—south- and west-facing side slopes
Parent material: Residuum and colluvium
Geology: Tuffaceous and pumiceous material
Elevation: 4,700 to 6,000 feet

Rangeland ecological site and characteristic vegetation: Middlebox, north slopes—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Middlebox, south slopes—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Middlebox, North and South Slopes

0 to 4 inches—light brownish gray gravelly sandy loam
4 to 10 inches—pale brown very gravelly sandy clay loam
10 to 35 inches—pale brown very cobbly sandy clay loam
35 to 40 inches—weathered pumiceous tuff

Properties and Qualities of Middlebox, North and South Slopes

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—moderate

Contrasting Inclusions

- Robson and Dogmountain soils on hills
- Felcher soils on south-facing hillsides
- Rock outcrop

Major Soil Limitations

Available water capacity, water erosion, depth to bedrock, wind erosion

Use and Management

Livestock Grazing

Middlebox, north and south slopes
- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water and wind erosion.
- The suitability for seeding is poor because of droughtiness.

Middlebox, north slopes
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

Middlebox, south slopes
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.

209—Minam silt loam, 0 to 2 percent slopes

Composition

Minam and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Drainageways
Slope features: Plane and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,500 to 5,100 feet
Rangeland ecological site and characteristic vegetation: (SR Dry Mountain Swale 12-16PZ) mountain big sagebrush, Idaho fescue, sedge
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 29 inches—dark grayish brown silt loam
29 to 39 inches—brown loam
39 to 52 inches—yellowish brown gravelly sandy clay loam
52 to 62 inches—yellowish brown gravelly sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 8 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Welch soils in concave areas on stream terraces
- Roschene soils on stream terraces
- Cumulic Haploxerolls adjacent to streams

Major Soil Limitations

None

Use and Management

Livestock Grazing

- As the site deteriorates, big sagebrush, sedges, bluegrasses, and bottlebrush squirrel increase and Idaho fescue decreases.
- As the streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production.
- The suitability for seeding is good.

210—Minam-Welch complex, 0 to 3 percent slopes

Composition

Minam and similar soils—60 percent
Welch and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Drainageways and stream terraces
Slope features: Minam—plane and convex; Welch—plane and concave

Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,500 to 4,900 feet
Rangeland ecological site and characteristic vegetation: Minam—(SR Dry Mountain Swale 12-16PZ) mountain big sagebrush, Idaho fescue, sedge; Welch—(Mountain Meadow) tufted hairgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Minam

0 to 29 inches—dark grayish brown silt loam
29 to 39 inches—brown loam
39 to 52 inches—yellowish brown gravelly sandy clay loam
52 to 62 inches—yellowish brown gravelly sandy loam

Properties and Qualities of Minam

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 8 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Welch

0 to 5 inches—dark grayish brown silt loam
5 to 34 inches—gray and dark gray silt loam
34 to 60 inches—light brownish gray loam

Properties and Qualities of Welch

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Water table: Present late in winter, in spring, and early in summer
Flooding: Present in spring
Permeability: Moderately slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Contrasting Inclusions

- Cumulic Haploxerolls adjacent to streams
- Roschene soils on stream terraces

Major Soil Limitations

Minam—none
Welch—wetness, frost action

Use and Management

Livestock Grazing

Minam and Welch

- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- This unit provides important food and cover for wildlife.

- The suitability for seeding is good.

Minam
- As the site deteriorates, big sagebrush, sedges, bluegrasses, and bottlebrush squirrel increase and Idaho fescue decreases.

Welch
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- As the site deteriorates, sedges, rushes, cinquefoil, and bluegrasses increase and tufted hairgrass decreases.

211—Modoc gravelly sandy loam, 2 to 15 percent slopes

Composition

Modoc and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,700 to 4,000 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Loamy 9-12PZ) Wyoming big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—brown gravelly sandy loam
2 to 22 inches—brown and light yellowish brown loam
22 to 25 inches—yellow gravelly clay loam
25 to 41 inches—indurated duripan
41 to 60 inches—yellow extremely gravelly coarse sandy loam

Soil Properties and Qualities

Depth: 20 to 25 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow above the duripan and rapid below it
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate

Contrasting Inclusions

- Loupence soils on stream terraces
- Mahoon soils on hills

Major Soil Limitations

Depth to a hardpan, wind erosion, seepage

Use and Management

Livestock Grazing

- Depth to the hardpan and the risk of seepage limit the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and needlegrasses decrease.
- The suitability for seeding is good.

212—Morfitt loam, 0 to 2 percent slopes

Composition

Morfitt and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane and concave
Parent material: Lacustrine sediment
Elevation: 4,600 to 4,800 feet
Rangeland ecological site and characteristic vegetation: (Dry Ponded Clay 6-10PZ) basin big sagebrush, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—light gray loam
2 to 8 inches—gray clay loam
8 to 20 inches—brown clay loam
20 to 32 inches—light brownish gray clay loam
32 to 41 inches—light brownish gray loam
41 to 60 inches—light gray loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Swalesilver soils in depressions of lake plains

Major Soil Limitations

Wetness, corrosivity

Use and Management

Livestock Grazing

- This unit provides important food and cover for wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- This soil is susceptible to invasion by povertyweed and Russian thistle.
- The suitability for seeding is very poor because of droughtiness.

213—Morganhills sandy loam, 2 to 12 percent slopes

Composition

Morganhills and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Convex
Parent material: Colluvium and residuum
Geology: Tuffaceous sandstone
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 8 inches—brown sandy loam
8 to 15 inches—brown gravelly sandy loam
15 to 17 inches—pale brown very gravelly sandy loam
17 inches—tuffaceous sandstone

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate

Contrasting Inclusions

- Pernty soils on hills
- Reallis and Lawen soils on lake terraces

Major Soil Limitations

Wind erosion, water erosion, depth to bedrock

Use and Management

Irrigated Hayland

- Practices that help to control erosion include maintaining crop residue on the soil surface, using minimum tillage, stripcropping, planting cover crops, and contour plowing.

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity.

214—Morganhills complex, 2 to 35 percent slopes

Composition

Morganhills, more than 12 percent slopes, and similar soils—50 percent
Morganhills, less than 12 percent slopes, and similar soils—40 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Slope features: Convex
Parent material: Colluvium and residuum
Geology: Tuffaceous sandstone
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Morganhills, more than 12 percent slopes—(Sandy Slopes 10-12PZ) basin big sagebrush, antelope bitterbrush, needleandthread, Indian ricegrass; Morganhills, less than 12 percent slopes—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 8 inches—brown sandy loam
8 to 15 inches—brown gravelly sandy loam
15 to 17 inches—pale brown very gravelly sandy loam
17 inches—weathered tuffaceous sandstone

Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid

Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—moderate

Contrasting Inclusions

- Pernty soils on hills
- Reallis and Lawen soils on lake terraces

Major Soil Limitations

Water erosion, depth to bedrock, wind erosion

Use and Management

Livestock Grazing

Morganhills, more than 12 percent slopes and less than 12 percent slopes
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The suitability for seeding is poor because of the low available water capacity.

Morganhills, more than 12 percent slopes
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Indian ricegrass, needlegrass, and antelope bitterbrush decrease.

Morganhills, less than 12 percent slopes
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

215—Mound stony loam, 2 to 20 percent slopes

Composition

Mound and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Tuff
Elevation: 5,100 to 5,600 feet
Forestland plant association and characteristic vegetation: (Ponderosa pine/elk sedge) ponderosa pine, elk sedge
Climatic factors:
Mean annual precipitation—16 to 20 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0.5 inch to 0—slightly decomposed plant material

0 to 3 inches—brown stony loam
3 to 10 inches—yellowish brown very stony loam
10 to 26 inches—brown very stony clay
26 to 53 inches—strong brown very stony clay
53 inches—welded tuff

Soil Properties and Qualities

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Royst and Merlin soils on hills
- Rock outcrop

Major Soil Limitations

Surface stones, shrink-swell potential

Use and Management

Forest Products

- Because of the clayey subsoil, roads need additional rock in the subgrade and surface grade.
- Roads and landings are difficult to construct because of the stones in the soil and the depth to bedrock.
- The surface stones limit the effective use of equipment for mechanical site preparation and limit use of wheeled or tracked equipment.
- Planting by hand is very difficult because of the surface stones.
- Mechanical planting is restricted by the surface stones.
- Because of the surface stones, fires of moderate fireline intensity may damage the soil. Consider alternative techniques if prescribed burning is used.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The heavy-textured soil expands when wet and contracts when dry, which may damage the roots of seedlings.

216—Nevador very gravelly sandy loam, 3 to 12 percent slopes

Composition

Nevador and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,600 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass

Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—very pale brown very gravelly sandy loam
3 to 7 inches—light gray loam
7 to 14 inches—yellowish brown clay loam
14 to 18 inches—brownish yellow clay loam
18 to 32 inches—very pale brown sandy loam
32 to 62 inches—very pale brown gravelly sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Kerrfield and Tumtum soils on alluvial fans
- Torriorthents on convex slopes

Major Soil Limitations

Corrosivity, wind erosion

Use and Management

Livestock Grazing

- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

217—Ninemile gravelly loam, hummocky, 0 to 8 percent slopes

Composition

Ninemile and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Residuum and alluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,400 to 4,700 feet
Rangeland ecological site and characteristic vegetation: (Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—grayish brown gravelly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Soil Properties and Qualities

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Reluctan soils on plateaus
- Carvix soils on stream terraces
- Gradon soils on fans
- Rock outcrop and Rubble land

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

218—Ninemile very cobbly clay loam, low precipitation, 2 to 30 percent slopes

Composition

Ninemile and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus (fig. 8)



Figure 8.—Area of Ninemile very cobbly clay loam, low precipitation, 2 to 30 percent slopes, in foreground. Western juniper in background is in an area of Ninemile gravelly loam, hummocky, 0 to 8 percent slopes.

Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,600 to 6,300 feet
Rangeland ecological site and characteristic vegetation: (Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Soil Properties and Qualities

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Brace and Fourwheel soils on hills and plateaus
- Carvix soils on stream terraces and drainageways
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a claypan, available water capacity, shrink-swell potential, surface rock fragments

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

219—Ninemile very stony clay loam, 0 to 20 percent slopes

Composition

Ninemile and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Andesite, basalt, and welded tuff
Elevation: 4,400 to 6,800 feet
Rangeland ecological site and characteristic vegetation: (Claypan 12-16) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—grayish brown very stony clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Soil Properties and Qualities

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carvix soils on stream terraces
- Westbutte soils on hills and mountains
- Rock outcrop
- Rubble land

Major Soil Limitations

Surface stones, depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones and low available water capacity.

220—Ninemile-Carvix complex, 0 to 8 percent slopes

Composition

Ninemile and similar soils—55 percent
Carvix and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Position on landform: Ninemile—convex areas; Carvix—concave drainageways
Parent material: Ninemile—residuum and alluvium; Carvix—alluvium
Geology: Ninemile—basalt, andesite, and welded tuff; Carvix—mixed rock sources
Elevation: 4,200 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Carvix—(Swale 10-14PZ) basin big sagebrush, basin wildrye, bluebunch wheatgrass, Idaho fescue

Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown gravelly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Carvix

0 to 6 inches—brown silt loam
6 to 19 inches—brown silt loam
19 to 39 inches—brown loam
39 to 60 inches—yellowish brown loam

Properties and Qualities of Carvix

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Reluctan soils in concave areas of plateaus
- Gradon soils on fans
- Reallis soils on terraces
- Rock outcrop and Rubble land

Major Soil Limitations

Ninemile—depth to bedrock, depth to a claypan, available water capacity, shrink-swell potential
Carvix—corrosivity

Use and Management

Livestock Grazing

Ninemile
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

Carvix

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and basin wildrye, Idaho fescue, and bluebunch wheatgrass decrease.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production.
- The suitability for seeding is good.

221—Ninemile-Doyn complex, 2 to 20 percent slopes

Composition

Ninemile and similar soils—60 percent
Doyn and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass; Doyn—(SR Very Shallow 9-12PZ) stiff sagebrush, Sandberg bluegrass, Idaho fescue
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Doyn

0 to 2 inches—brown very stony loam

2 to 8 inches—brown cobbly loam
8 inches—basalt

Properties and Qualities of Doyn

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Mahoon and Porterfield soils on hills
- Rock outcrop

Major Soil Limitations

Ninemile and Doyn—depth to bedrock, available water capacity
Ninemile—depth to a claypan, shrink-swell potential, surface rock fragments
Doyn—surface stones

Use and Management

Livestock Grazing

Ninemile and Doyn
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.

Ninemile
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Doyn
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and surface stones.

222—Ninemile-Edemaps complex, 2 to 10 percent slopes

Composition

Ninemile and similar soils—50 percent
Edemaps and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus and hills
Slope features: Plane and convex
Parent material: Ninemile—residuum and colluvium; Edemaps—old alluvium and colluvium
Geology: Andesite, basalt, and welded tuff
Elevation: 4,500 to 4,900 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Edemaps—(Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 14 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown gravelly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Edemaps

0 to 7 inches—grayish brown cobbly clay loam
7 to 10 inches—dark brown clay
10 to 18 inches—brown clay
18 to 25 inches—yellowish brown very cobbly clay loam
25 to 30 inches—indurated duripan
30 inches—fractured basalt

Properties and Qualities of Edemaps

Depth: 20 to 35 inches to a duripan and 24 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Westbutte soils on hills and plateaus
- Reallis soils on lake terraces
- Carvix soils on stream terraces

Major Soil Limitations

Ninemile and Edemaps—depth to bedrock, shrink-swell potential

Ninemile—depth to a claypan, available water capacity
Edemaps—depth to a hardpan

Use and Management

Livestock Grazing

Ninemile and Edemaps
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.

Ninemile
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead and by western juniper.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity.

Edemaps
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

223—Ninemile-Madeline complex, 2 to 15 percent slopes

Composition

Ninemile and similar soils—45 percent
Madeline and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass; Madeline—(SR Mountain Shallow 9-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly clay loam

4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Madeline

0 to 2 inches—reddish brown gravelly clay loam
2 to 10 inches—reddish brown clay loam
10 to 19 inches—reddish brown cobbly clay loam
19 inches—rhyolite

Properties and Qualities of Madeline

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn and Mahoon soils on hills
- Rock outcrop

Major Soil Limitations

Ninemile and Madeline—shrink-swell potential, depth to bedrock, available water capacity
Ninemile—depth to a claypan, surface rock fragments

Use and Management

Livestock Grazing

Ninemile and Madeline

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- These soils are susceptible to invasion by cheatgrass and medusahead.

Ninemile

- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Madeline
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

224—Ninemile-Pearlwise complex, 20 to 35 percent slopes

Composition

Ninemile and similar soils—60 percent
Pearlwise and similar soils—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Ninemile—side slopes and benches; Pearlwise—north- and east-facing side slopes and benches
Parent material: Residuum and alluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,500 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Pearlwise—(Deep North 12-18PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Pearlwise

0 to 22 inches—very dark grayish brown clay loam
22 inches—basalt

Properties and Qualities of Pearlwise

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate

Available water capacity: About 4 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Baconcamp soils on south-facing side slopes
- Hackwood soils on footslopes
- Welch soils in drainageways
- Noname soils on ridges
- Rock outcrop

Major Soil Limitations

Ninemile and Pearlwise—water erosion, depth to bedrock
Ninemile—depth to a claypan, shrink-swell potential, available water capacity, surface rock fragments

Use and Management

Livestock Grazing

Ninemile and Pearlwise
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.

Ninemile
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Pearlwise
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and bluegrasses increase and Idaho fescue, bluebunch wheatgrass, and needlegrasses decrease.
- The suitability for seeding is fair because of the steepness of slope.

225—Ninemile-Reluctan complex, 0 to 15 percent slopes

Composition

Ninemile and similar soils—55 percent
Reluctan and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus and hills
Slope features: Concave and convex
Parent material: Ninemile—residuum and colluvium; Reluctan—residuum
Geology: Basalt and welded tuff
Elevation: 4,300 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan

12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Reluctan—(Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass

Climatic factors:

Mean annual precipitation—11 to 13 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Reluctan

0 to 2 inches—brown cobbly loam
2 to 9 inches—brown sandy loam
9 to 15 inches—brown sandy clay loam
15 to 26 inches—light brownish gray sandy clay loam
26 inches—basalt

Properties and Qualities of Reluctan

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Carvix soils on stream terraces
- Westbutte soils on hills and plateaus
- Reallis soils on lake terraces
- Rock outcrop and Rubble land

Major Soil Limitations

Ninemile and Reluctan—depth to bedrock
Ninemile—depth to a claypan, shrink-swell potential, available water capacity, surface rock fragments
Reluctan—corrosivity

Use and Management

Livestock Grazing

Ninemile and Reluctan

- Depth to bedrock limits the construction of water impoundments.

Ninemile
- Bedrock and the claypan restrict the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Reluctan
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

226—Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes

Composition

Ninemile and similar soils—50 percent
Reluctan and similar soils—20 percent
Rubble land—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Ninemile—residuum and colluvium; Reluctan—residuum
Geology: Basalt and welded tuff
Elevation: 4,300 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Reluctan—(Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—11 to 13 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock

Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Reluctan

0 to 2 inches—brown loam
2 to 9 inches—brown sandy loam
9 to 15 inches—brown sandy clay loam
15 to 26 inches—light brownish gray sandy clay loam
26 inches—basalt

Properties and Qualities of Reluctan

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Carvix soils on stream terraces
- Westbutte soils on hills and plateaus

Major Soil Limitations

Ninemile and Reluctan—depth to bedrock
Ninemile—depth to a claypan, shrink-swell potential, available water capacity, surface rock fragments
Reluctan—wind erosion, corrosivity

Use and Management

Livestock Grazing

Ninemile and Reluctan
- The areas of Rubble land restrict the use of wheeled and tracked equipment.
- Depth to bedrock limits the construction of water impoundments.

Ninemile
- Bedrock and the claypan restrict the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Reluctan
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

227—Ninemile-Rock outcrop complex, 40 to 70 percent south slopes

Composition

Ninemile and similar soils—70 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: South- and west-facing hillsides
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Edemaps soils on upper concave slopes of hillsides
- Reluctan soils on lower slopes of hillsides

Major Soil Limitations

Ninemile—water erosion, slope, depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the steepness of slope.

228—Ninemile-Rubble land complex, 5 to 20 percent slopes

Composition

Ninemile and similar soils—65 percent
Rubble land—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Reluctan and Westbutte soils on hills and plateaus
- Carvix soils on stream terraces

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential, available water capacity, surface rock fragments

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

229—Ninemile-Westbutte complex, 2 to 15 percent slopes

Composition

Ninemile and similar soils—60 percent
Westbutte and similar soils—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains, hills, and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,600 to 7,000 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Westbutte—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Pernty soils on hills
- Edemaps soils on hills and plateaus
- Carvix soils on stream terraces
- Rock outcrop

Major Soil Limitations

Ninemile and Westbutte—depth to bedrock, available water capacity
Ninemile—depth to a claypan, shrink-swell potential, surface rock fragments
Westbutte—surface stones

Use and Management

Livestock Grazing

Ninemile and Westbutte
- Depth to bedrock limits the construction of water impoundments.

Ninemile
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity and surface rock fragments.

Westbutte
- The extremely stony surface layer prohibits the operation of ground seeding equipment and limits livestock movement and the distribution of grazing.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones and low available water capacity.

230—Ninemile-Westbutte-Ninemile complex, 2 to 30 percent slopes

Composition

Ninemile, very cobbly, and similar soils—40 percent
Westbutte and similar soils—30 percent
Ninemile, extremely stony, and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 5,400 to 6,300 feet
Rangeland ecological site and characteristic vegetation: Ninemile, very cobbly—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Westbutte—(Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass; Ninemile, extremely stony—(Juniper Tableland 10-14PZ) western juniper, low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile, Very Cobbly

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile, Very Cobbly

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Ninemile, Extremely Stony

0 to 4 inches—grayish brown extremely stony silt loam

4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile, Extremely Stony

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Edemaps soils on hills and plateaus
- Carvix soils on stream terraces
- Rock outcrop

Major Soil Limitations

Ninemile and Westbutte—depth to bedrock, available water capacity, surface rock fragments
Ninemile—depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Ninemile, very cobbly and extremely stony, and Westbutte
- Depth to bedrock limits the construction of water impoundments.
- The surface stones prohibit the operation of ground seeding equipment and limit livestock movement and the distribution of grazing.

Ninemile, very cobbly and extremely stony
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.

Ninemile, very cobbly
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Westbutte
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones.

Ninemile, extremely stony
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and

Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones.

231—Ninemile association, 2 to 12 percent slopes

Composition

Ninemile, very cobbly, and similar soils—70 percent
Ninemile, extremely stony, and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Ninemile, very cobbly—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Ninemile, extremely stony—(Juniper Tableland 10-14PZ) western juniper, low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile, Very Cobbly

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Typical Profile of Ninemile, Extremely Stony

0 to 4 inches—grayish brown extremely stony silt loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile, Very Cobbly and Extremely Stony

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Boulder Lake soils on lakebeds
- Carryback soils on hills, ridges, and plateaus
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a claypan, shrink-swell potential, surface rock fragments, available water capacity

Use and Management

Livestock Grazing

Ninemile, very cobbly and extremely stony

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- The claypan restricts the rooting depth.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- The surface rock fragments prohibit the operation of ground seeding equipment and limit livestock movement and the distribution of grazing.

Ninemile, very cobbly

- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Ninemile, extremely stony

- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones.

232—Ninemile-Felcher association, 5 to 30 percent slopes

Composition

Ninemile and similar soils—70 percent
Felcher and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus
Position on landform: Ninemile—benches with slopes of 5 to 20 percent; Felcher—south- and west-facing side slopes of 20 to 30 percent
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,900 to 6,300 feet
Rangeland ecological site and characteristic vegetation: Ninemile—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass; Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Felcher

0 to 10 inches—light brownish gray stony clay loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Brace soils on hills
- Carvix soils on stream terraces
- Rock outcrop

Major Soil Limitations

Ninemile and Felcher—depth to bedrock, available water capacity
Ninemile—depth to a claypan, surface rock fragments
Felcher—water erosion, slope, surface stones

Use and Management

Livestock Grazing

Ninemile and Felcher

- Depth to bedrock limits the construction of water impoundments.

Ninemile

- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Felcher
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

233—Noname-Dickle complex, 3 to 12 percent slopes

Composition

Noname and similar soils—45 percent
Dickle and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 6,200 to 7,100 feet
Rangeland ecological site and characteristic vegetation: Noname—(Rocky Ridges 16-35PZ) curl-leaf mountain mahogany, mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Dickle—(Claypan 16-25PZ) low sagebrush, Idaho fescue, onespike oatgrass
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Noname

0 to 3 inches—pale brown stony clay loam
3 to 12 inches—yellowish brown clay loam
12 inches—andesite

Properties and Qualities of Noname

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Dickle

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 6 inches—grayish brown clay loam
6 to 14 inches—brown clay loam
14 inches—basalt

Properties and Qualities of Dickle

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow

Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Hackwood soils in concave areas of mountains
- Welch soils along drainageways of mountains
- Rock outcrop

Major Soil Limitations

Noname and Dickle—depth to bedrock, cold climate, available water capacity, surface rock fragments

Use and Management

Livestock Grazing

Noname and Dickle
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, surface rock fragments, and short growing season.

Noname
- As the site deteriorates, mountain big sagebrush, mountain brome, and bottlebrush squirreltail increase and basin wildrye, Idaho fescue, and western needlegrass decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.

Dickle
- As the site deteriorates, low sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and fescue and onespike oatgrass decrease.

234—Noname-Duff-Rock outcrop complex, 20 to 80 percent slopes

Composition

Noname and similar soils—40 percent
Duff and similar soils—30 percent
Rock outcrop—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Noname and Duff—colluvium and residuum
Geology: Basalt and andesite
Elevation: 6,300 to 9,200 feet

Rangeland ecological site and characteristic vegetation: Noname—(Rocky Ridges 16-35PZ) curl-leaf mountain mahogany, mountain big sagebrush, whortleleaf snowberry, Idaho fescue; Duff—(Subalpine Slopes 16-35PZ) mountain big sagebrush, Idaho fescue, whortleleaf snowberry
Climatic factors:
Mean annual precipitation—16 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Noname

0 to 3 inches—pale brown very stony loam
3 to 12 inches—yellowish brown clay loam
12 inches—andesite

Properties and Qualities of Noname

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—severe; wind—slight

Typical Profile of Duff

0 to 8 inches—very dark grayish brown very stony loam
8 to 24 inches—very dark grayish brown loam
24 to 43 inches—dark brown very gravelly loam
43 inches—fractured basalt

Properties and Qualities of Duff

Depth: 40 to 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Dickle soils on mountains
- Welch soils along drainageways of mountains

Major Soil Limitations

Noname and Duff—water erosion, slope, surface stones, cold climate
Noname—depth to bedrock

Use and Management

Livestock Grazing

Noname and Duff
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and stones on the surface restrict the operation of equipment.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- The suitability for seeding is very poor because of the steepness of slope, surface stones, and short growing season.

Noname

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, mountain big sagebrush, mountain brome, and bottlebrush squirreltail increase and basin wildrye, Idaho fescue, and western needlegrass decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.

Duff

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

235—Norad silt loam, 0 to 1 percent slopes

Composition

Norad and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,300 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Silty 6-10PZ) winterfat, sickle saltbush, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 3 inches—light brownish gray silt loam
3 to 7 inches—pale brown silty clay loam
7 to 23 inches—light brownish gray silty clay loam
23 to 34 inches—pale brown silty clay loam
34 to 46 inches—very pale brown silt loam
46 to 52 inches—white silt loam
52 to 61 inches—light gray loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 13 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Spangenburg, Berdugo, and Langslet soils on lake terraces

Major Soil Limitation

Corrosivity

Use and Management

Livestock Grazing

- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale and bottlebrush squirreltail increase and winterfat and Indian ricegrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of droughtiness.

236—Norad-Spangenburg complex, 0 to 2 percent slopes

Composition

Norad and similar soils—45 percent
Spangenburg and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Norad—lake terraces; Spangenburg—lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,500 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Norad—(Silty 6-10PZ) winterfat, sickle saltbush, Indian ricegrass; Spangenburg—(Dry Ponded Clay 6-10PZ) basin big sagebrush, beardless wildrye, basin wildrye, bottlebrush squirreltail
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Norad

0 to 3 inches—light brownish gray silt loam
3 to 7 inches—pale brown silty clay loam
7 to 23 inches—light brownish gray silty clay loam
23 to 34 inches—pale brown silty clay loam
34 to 46 inches—very pale brown silt loam
46 to 52 inches—white silt loam
52 to 61 inches—light gray loam

Properties and Qualities of Norad

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 13 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Spangenburg

0 to 2 inches—light brownish gray silt loam
2 to 6 inches—pale brown and pale yellowish brown silty clay
6 to 15 inches—yellowish brown silty clay
15 to 34 inches—pale brown silty clay loam
34 to 60 inches—very pale brown loam

Properties and Qualities of Spangenburg

Depth: 2 to 10 inches to a claypan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Permeability: Slow
Ponding: Present in spring
Water table: Present in spring and late in winter
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Berdugo and Langslet soils on lake terraces
- Boulder Lake soils in depressions of lake terraces

Major Soil Limitations

Norad—corrosivity
Spangenburg—shrink-swell potential, wetness, corrosivity, depth to a claypan

Use and Management

Livestock Grazing

Norad and Spangenburg
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Norad
- As the site deteriorates, shadscale and bottlebrush squirreltail increase and winterfat and Indian ricegrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of droughtiness.

Spangenburg
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is poor because of the depth to the claypan.

237—Nuss stony loam, 20 to 40 percent south slopes

Composition

Nuss and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills

Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Shallow South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—grayish brown stony loam
4 to 12 inches—dark grayish brown gravelly loam
12 to 15 inches—dark grayish brown cobbly loam
15 inches—fractured basalt

Soil Properties and Qualities

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Teguro soils on higher slopes of hillsides
- Merlin soils on convex slopes of hillsides
- Rock outcrop and Rubble land

Major Soil Limitations

Water erosion, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity.

238—Nuss-Merlin complex, 20 to 40 percent north slopes

Composition

Nuss and similar soils—60 percent
Merlin and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Nuss—(SR Mountain Shallow North 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Nuss

0 to 4 inches—grayish brown stony loam
4 to 12 inches—dark grayish brown gravelly loam
12 to 15 inches—dark grayish brown cobbly loam
15 inches—fractured basalt

Properties and Qualities of Nuss

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Merlin

0 to 7 inches—brown very cobbly clay loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn soils on hills adjacent to areas of Rock outcrop
- Lambring soils on mountains
- Rock outcrop

Major Soil Limitations

Nuss and Merlin—water erosion, depth to bedrock, available water capacity
Merlin—depth to a claypan, shrink-swell potential, surface rock fragments

Use and Management

Livestock Grazing

Nuss and Merlin

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Nuss

- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

Merlin

- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to a claypan, and surface rock fragments.

239—Nuss-Rock outcrop complex, 20 to 40 percent south slopes

Composition

Nuss and similar soils—55 percent
Rock outcrop—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Nuss—(SR Mountain Shallow South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Nuss

0 to 4 inches—grayish brown stony loam
4 to 12 inches—dark grayish brown gravelly loam
12 to 15 inches—dark grayish brown cobbly loam
15 inches—fractured basalt

Properties and Qualities of Nuss

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Ateron and Observation soils on hills

Major Soil Limitations

Water erosion, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and areas of Rock outcrop.

240—Observation stony loam, 2 to 20 percent slopes

Composition

Observation and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,800 to 5,300 feet
Rangeland ecological site and characteristic vegetation: (SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—dark grayish brown stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Erakatak, Gaib, Merlin, and Vitale soils on hills
- Cumulic Haploxerolls in swales and drainageways
- Doyn soils on plateaus and hills
- Rock outcrop and Rubble land

Major Soil Limitations

Depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is fair because of the surface stones.

241—Observation-Rock outcrop complex, 5 to 20 percent slopes

Composition

Observation and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Observation—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Observation

0 to 4 inches—dark grayish brown stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Egyptcreek, Erakatak, Gaib, Merlin, and Teguro soils on hills
- Soils that are similar to Hackwood soils and are on mountains
- Cumulic Haploxerolls on stream terraces

Major Soil Limitations

Depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the surface stones and areas of Rock outcrop.

242—Observation-Royst-Merlin complex, 2 to 30 percent slopes

Composition

Observation and similar soils—45 percent
Royst and similar soils—30 percent
Merlin and similar soils—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum

Geology: Basalt, andesite, and welded tuff
Elevation: 4,700 to 5,400 feet
Rangeland ecological site and characteristic vegetation: Observation—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Royst—(SR Dry Pine 14-16PZ) ponderosa pine, western juniper, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Observation

0 to 4 inches—dark grayish brown stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Royst

0 to 3 inches—dark grayish brown very cobbly loam
3 to 7 inches—dark grayish brown cobbly loam
7 to 22 inches—brown very stony clay loam
22 to 23 inches—weathered tuff
23 inches—fractured welded tuff

Properties and Qualities of Royst

Depth: 20 to 35 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Merlin

0 to 7 inches—brown very stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Ateron and Egyptcreek soils on hills

Major Soil Limitations

Observation, Royst, and Merlin—shrink-swell potential, depth to bedrock
Royst and Merlin—available water capacity
Royst—rock fragments
Merlin—surface stones, depth to a claypan

Use and Management

Livestock Grazing

Observation, Royst, and Merlin
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Depth to bedrock limits the construction of water impoundments.

Observation
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- This soil is susceptible to invasion by western juniper.
- The suitability for seeding is fair because of the surface stones.

Royst
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity and cobbles on the surface.

Merlin
- The very stony surface layer restricts the operation of ground seeding equipment.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the surface stones, low available water capacity, and depth to the claypan.

Forest Products

Royst
- Roads and landings are difficult to construct because of the rock fragments and depth to bedrock.
- Operating wheeled or tracked equipment efficiently is limited by the rock fragments.
- Surface mechanical site preparation is limited by the surface rock fragments.

- The surface rock fragments and stones in the subsoil limit the effective use of equipment for deep mechanical site preparation and mechanical planting.
- Planting by hand is difficult because of the rock fragments.
- The seedling mortality rate is above normal because of the low available water capacity.
- Because of the surface rock fragments, fires of moderate fireline intensity may damage the soil. Consider alternative techniques if prescribed burning is used.

243—Observation-Teguro complex, 2 to 20 percent slopes

Composition

Observation and similar soils—50 percent
Teguro and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and loess
Geology: Basalt and welded tuff
Elevation: 4,800 to 5,400 feet
Rangeland ecological site and characteristic vegetation: Observation—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass; Teguro—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Observation

0 to 4 inches—dark grayish brown very gravelly loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Teguro

0 to 2 inches—grayish brown very cobbly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Lambring soils on hillsides and canyonsides
- Erakatak, Gaib, and Merlin soils on hills
- Cumulic Haploxerolls in swales and drainageways
- Doyn soils on plateaus and hills
- Rock outcrop and Rubble land

Major Soil Limitations

Observation and Teguro—depth to bedrock
Observation—shrink-swell potential
Teguro—available water capacity, surface rock fragments

Use and Management

Livestock Grazing

Observation and Teguro
- Depth to bedrock limits the construction of water impoundments.

Observation
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is good.

Teguro
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

244—Observation-Lambring-Rock outcrop association, 20 to 50 percent slopes

Composition

Observation and similar soils—50 percent
Lambring and similar soils—25 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and mountains

Position on landform: Observation—south- and west-facing side slopes; Lambring—north- and east-facing side slopes
Parent material: Observation—colluvium and residuum; Lambring—colluvium
Geology: Basalt and welded tuff
Elevation: 4,200 to 5,900 feet
Rangeland ecological site and characteristic vegetation: Observation—(SR Mountain South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Idaho fescue; Lambring—(JD Shrubby Mountain North 12-16PZ) antelope bitterbrush, mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Observation

0 to 4 inches—dark grayish brown very stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Erakatak soils on hills and mountains
- Arcia, Egyptcreek, and Teguro soils on hills

Major Soil Limitations

Observation and Lambring—water erosion, slope, surface stones
Observation—depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

Observation and Lambring
- Construction of waterbars prevents gullying on roads, trails, and pipelines.

- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- The suitability for seeding is poor because of the surface stones and steepness of slope.

Observation
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

Lambring
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

245—Olac-Atlow complex, 2 to 10 percent slopes

Composition

Olac and similar soils—55 percent
Atlow and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt
Elevation: 4,200 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Olac—(Thin Surface 8-14PZ) black sagebrush, bottlebrush squirreltail, Sandberg bluegrass; Atlow—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Olac

0 to 4 inches—light brownish gray very cobbly fine sandy loam
4 to 10 inches—pale brown very cobbly clay loam
10 to 13 inches—light yellowish brown extremely cobbly clay loam
13 inches—highly fractured basalt

Properties and Qualities of Olac

Depth: 10 to 14 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch

Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Typical Profile of Atlow

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Properties and Qualities of Atlow

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Deppy soils on old lake terraces
- Kerrfield and Anawalt soils on hills
- Rock outcrop

Major Soil Limitations

Olac and Atlow—available water capacity, depth to bedrock
Olac—wind erosion, corrosivity
Atlow—surface stones

Use and Management

Livestock Grazing

Olac and Atlow
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- A well-developed erosion pavement can limit the reestablishment of plants.
- This unit is suited to grazing in winter.

Olac
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, Sandberg bluegrass and rabbitbrush increase and black sagebrush, bottlebrush squirreltail, and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

Atlow
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity, surface stones, and depth to bedrock.

246—Opie silt loam, 0 to 1 percent slopes

Composition

Opie and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—gray silt loam
7 to 10 inches—gray silty clay loam
10 to 16 inches—gray silt loam
16 to 26 inches—dark gray silty clay loam
26 to 44 inches—gray and dark grayish brown silt loam
44 to 64 inches—light brownish gray gravelly loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through early in summer
Permeability: Moderately slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Moderate
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Fury, Skidoosprings, and Widowspring soils on lake plains

Major Soil Limitations

Wetness, salinity, alkalinity, corrosivity, frost action

Use and Management

Irrigated Hayland

- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets.

- Salt-tolerant plants are the most suitable for planting.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the strong salinity and moderate alkalinity.

247—Oreneva gravelly loam, 0 to 12 percent slopes

Composition

Oreneva and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Welded tuff
Elevation: 4,200 to 6,200 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—pale brown gravelly loam
2 to 10 inches—brown clay loam
10 to 21 inches—light yellowish brown very gravelly loam
21 inches—welded tuff

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Actem, Anawalt, and Raz soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Depth to bedrock, corrosivity

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

248—Outerkirk sandy loam, 1 to 4 percent slopes

Composition

Outerkirk and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,900 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Sodic Fan 6-10PZ) basin big sagebrush, black greasewood, Indian ricegrass, basin wildrye
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 6 inches—light brownish gray sandy loam
6 to 23 inches—light gray sandy loam
23 to 29 inches—pale brown gravelly sandy loam
29 to 51 inches—very pale brown loamy sand
51 to 60 inches—brown loamy sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Davey, McConnel, and Spangenburg soils on lake terraces

Major Soil Limitations

Wind erosion, seepage, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, black greasewood, and bottlebrush squirreltail increase and basin wildrye and Indian ricegrass decrease.
- The suitability for seeding is very poor because of droughtiness.

249—Outerkirk sandy loam, silty substratum, 2 to 6 percent slopes

Composition

Outerkirk and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,900 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Desert Loam 6-10PZ) shadscale, bud sagebrush, Indian ricegrass, bottlebrush squirreltail
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 4 inches—light brownish gray sandy loam
4 to 23 inches—light gray sandy loam
23 to 27 inches—pale brown gravelly sandy loam
27 to 42 inches—very pale brown loamy sand
42 to 60 inches—brown silty clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 8 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Davey soils on lake terraces
- Droval soils on lake plains

Major Soil Limitations

Wind erosion, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale, annual forbs, and cheatgrass increase and bud sagebrush, Indian ricegrass, and bottlebrush squirreltail decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is very poor because of droughtiness.

250—Outerkirk-Defenbaugh association, 1 to 4 percent slopes

Composition

Outerkirk and similar soils—55 percent
Defenbaugh and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Position on landform: Outerkirk—upper slopes; Defenbaugh—lower slopes
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,900 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Outerkirk—(Sodic Fan 6-10PZ) basin big sagebrush, black greasewood, Indian ricegrass, basin wildrye; Defenbaugh—(Low Sodic Terrace 6-10PZ) black greasewood, shadscale, spiny hopsage, bottlebrush squirreltail, bud sagebrush
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Outerkirk

0 to 6 inches—light brownish gray sandy loam
6 to 23 inches—light gray sandy loam
23 to 29 inches—pale brown gravelly sandy loam
29 to 51 inches—very pale brown loamy sand
51 to 60 inches—brown loamy sand

Properties and Qualities of Outerkirk

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow over rapid

Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Typical Profile of Defenbaugh

0 to 5 inches—pale brown loam
5 to 16 inches—light yellowish brown clay loam
16 to 29 inches—yellowish brown clay loam
29 to 47 inches—light yellowish brown very fine sandy loam
47 to 53 inches—yellowish brown sandy loam
53 to 62 inches—light yellowish brown loam

Properties and Qualities of Defenbaugh

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Alvodest soils on lake plains
- Davey and Dixon soils on lake terraces

Major Soil Limitations

Outerkirk and Defenbaugh—salinity, corrosivity
Outerkirk—wind erosion, seepage

Use and Management

Livestock Grazing

Outerkirk and Defenbaugh
- The suitability for seeding is very poor because of droughtiness.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Outerkirk
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, black greasewood, and bottlebrush squirreltail increase and basin wildrye and Indian ricegrass decrease.

Defenbaugh
- As the site deteriorates, shadscale, black greasewood, and bottlebrush squirreltail increase and bud sagebrush, basin wildrye, and beardless wildrye decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.

251—Ozamis silt loam, 0 to 1 percent slopes

Composition

Ozamis and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 5 inches—very dark grayish brown silt loam
5 to 11 inches—dark gray silt loam
11 to 19 inches—grayish brown clay loam
19 to 50—light brownish gray loam and clay loam
50 to 60 inches—light brownish gray sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in spring and early in summer
Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Alvodest and Droval soils on lake plains
- Defenbaugh soils on alluvial fans
- Dixon soils on lake terraces

Major Soil Limitations

Wetness, corrosivity, frost action

Use and Management

Irrigated Hayland

- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.

- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is good.

252—Pearlwise stony loam, 30 to 65 percent north slopes

Composition

Pearlwise and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 5,400 to 6,300 feet
Rangeland ecological site and characteristic vegetation: (Rocky Ridges 12-16PZ) curl-leaf mountain mahogany, mountain big sagebrush, skyline bluegrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 6 inches—very dark grayish brown stony loam
6 to 22 inches—very dark grayish brown clay loam
22 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Hackwood soils in concave areas
- Riddleranch soils on low-lying, south-facing side slopes
- Noname soils on high-lying, north-facing side slopes
- Rock outcrop

Major Soil Limitations

Water erosion, slope, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and basin wildrye, skyline bluegrass, and western needlegrass decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is very poor because of the steepness of slope.

253—Pernty gravelly silt loam, 3 to 15 percent slopes

Composition

Pernty and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and rhyolite
Elevation: 4,500 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—11 to 13 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—grayish brown gravelly silt loam
3 to 8 inches—grayish brown cobbly loam
8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Madeline soils on north-facing hillsides
- Ninemile soils on plateaus
- Carryback soils on hills
- Carvix soils in swales

Major Soil Limitations

Depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

254—Pernty gravelly silt loam, 15 to 40 percent south slopes

Composition

Pernty and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt and rhyolite
Elevation: 4,000 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—grayish brown gravelly silt loam
3 to 8 inches—grayish brown cobbly loam
8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Lambring soils on north-facing hillsides
- Ninemile soils on plateaus
- Carryback soils on hills

Major Soil Limitations

Water erosion, slope, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and western juniper.
- The suitability for seeding is poor because of the low available water capacity.

255—Pernty cobbly loam, 30 to 50 percent north slopes

Composition

Pernty and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt and rhyolite
Elevation: 5,200 to 7,000 feet
Rangeland ecological site and characteristic vegetation: (Shallow North 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—grayish brown cobbly loam
3 to 8 inches—grayish brown cobbly loam
8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Pernty soils on south-facing side slopes
- Ninemile soils on plateaus
- Carryback soils on hills
- Rock outcrop

Major Soil Limitations

Water erosion, slope, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment and the construction of water impoundments.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The suitability for seeding is poor because of the low available water capacity and steepness of slope.

256—Pernty-Rock outcrop complex, 30 to 70 percent south slopes

Composition

Pernty and similar soils—60 percent
Rock outcrop—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt and rhyolite
Elevation: 4,000 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Pernty—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Pernty

0 to 3 inches—grayish brown gravelly silt loam
3 to 8 inches—grayish brown cobbly loam
8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Properties and Qualities of Pernty

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Lambring soils on north-facing mountainsides

Major Soil Limitations

Slope, depth to bedrock, water erosion, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment and the construction of water impoundments.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and western juniper.
- The suitability for seeding is poor because of the low available water capacity and steepness of slope.

257—Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes

Composition

Pernty and similar soils—40 percent
Westbutte and similar soils—25 percent
Ninemile and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Pernty—south- and west-facing side slopes; Westbutte—north- and east-facing side slopes; Ninemile—plane and convex slopes
Parent material: Colluvium and residuum
Geology: Basalt and rhyolite
Elevation: 4,000 to 7,000 feet
Rangeland ecological site and characteristic vegetation: Pernty—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass; Westbutte—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Ninemile—(Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Pernty

0 to 3 inches—grayish brown gravelly silt loam
3 to 8 inches—grayish brown cobbly loam

8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Properties and Qualities of Pernty

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Ninemile

0 to 4 inches—grayish brown very cobbly clay loam
4 to 10 inches—grayish brown gravelly clay
10 to 16 inches—brown cobbly clay
16 inches—fractured basalt

Properties and Qualities of Ninemile

Depth: 2 to 7 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Carryback soils on plateaus and hills
- Rock outcrop

Major Soil Limitations

Pernty, Westbutte, and Ninemile—depth to bedrock, available water capacity
Pernty and Westbutte—slope, water erosion
Westbutte—surface stones
Ninemile—depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Pernty and Westbutte

- Steepness of slope restricts the operation of ground seeding equipment.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock and steepness of slope limit the construction of water impoundments.

- Maintaining adequate plant cover minimizes the risk of water erosion.

Pernty and Ninemile
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

Pernty
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and western juniper.
- The suitability for seeding is very poor because of the low available water capacity and steepness of slope.

Westbutte
- The extremely stony surface layer prohibits the operation of ground seeding equipment and limits livestock movement and the distribution of grazing.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass and western juniper.
- The suitability for seeding is very poor because of the surface stones, low available water capacity, and steepness of slope.

Ninemile
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead and by western juniper.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity.

258—Pits

This unit consists of sand, gravel, cinder, and borrow pits, and quarries. The sand and gravel pits are on Pleistocene lake and beach terraces. They are a major source of aggregate used in the construction of roads. The cinder and borrow pits and quarries are on foothills and plateaus. They are a good source of various kinds of rock that is used for most of the roads built in the survey area. Neither an ecological site nor a plant association has been assigned to this unit.

259—Playas

Composition

Playas—95 percent
Contrasting inclusions—5 percent

Setting

Landform: Lake plains
Slope features: Plane and concave

Parent material: Lacustrine sediment
Elevation: 4,000 to 5,100 feet
Climatic factors:
Mean annual precipitation—7 to 14 inches
Mean annual air temperature—40 to 49 degrees F
Frost-free period—50 to 100 days

Typical Profile of Playas

0 to 60 inches—stratified loamy, silty, and clayey alluvial sediment (fig. 9)

Properties and Qualities of Playas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: May be present throughout the year
Water table: May be present throughout the year
Permeability: Very slow
Hazard of erosion: Water—slight; wind—slight to severe
Salinity: Slight to strong
Alkalinity: Slight to strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High



Figure 9.—View of the Alvord Desert, which is a large area of Playas. Summit of Steens Mountain in background.

Other Features

- The areas of Playas that have slight salinity and alkalinity are on basalt plateaus and are associated with the Swalesilver soil.
- The areas of Playas that have strong salinity and alkalinity are in lacustrine lake basins of valley floors and are associated with the Alvodest and Boravall soils.
- In spring, Playas typically contain surface water from runoff. During summer and fall, the water slowly evaporates or percolates through the areas of Playas and thus they appear as nonvegetated areas on the maps. Depending on the climatic cycle, the areas of Playas may contain surface water year round or have none at all.

Contrasting Inclusions

- Alvodest soils on lake plains with hummocks of overblown sand

Major Limitations

Available water capacity, wind erosion, wetness, shrink-swell potential, salinity, alkalinity, corrosivity

Use and Management

Wildlife Habitat

- This unit provides habitat for wetland wildlife.
- Excess salts and sodium in the surface result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the surface reduce the water intake rate.
- Crusting of the surface reduces infiltration and results in ponding.

260—Playas-Thenarrows complex, 0 to 2 percent slopes

Composition

Playas and similar soils—60 percent
Thenarrows and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,090 to 4,105 feet
Rangeland ecological site and characteristic vegetation: Thenarrows—(Sodic Meadow) inland saltgrass, Sandberg bluegrass, alkali sacaton
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Playas

0 to 60 inches—stratified loamy, silty, and clayey lacustrine sediment

Properties and Qualities of Playas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: May be present throughout the year
Water table: Present throughout the year

Permeability: Very slow
Hazard of erosion: Water——slight; wind—slight to severe
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Thenarrows

0 to 14 inches—dark gray sandy loam
14 to 22 inches—dark grayish brown loamy sand
22 to 54 inches—light brownish gray sandy loam
54 to 60 inches—grayish brown loamy sand

Properties and Qualities of Thenarrows

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Sandgap soils on sand dunes
- Duckclub soils in convex areas of lake plains

Major Limitations

Wetness, alkalinity, corrosivity, wind erosion, seepage

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Excess salts and sodium result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the strong alkalinity.

261—Poall silt loam, 2 to 20 percent slopes

Composition

Poall and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Clayey 9-12PZ)
bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 8 inches—light brownish gray silt loam
8 to 17 inches—yellowish brown clay
17 to 33 inches—pale brown clay loam
33 to 45 inches—pale brown clay loam
45 to 65 inches—light yellowish brown gravelly clay loam

Soil Properties and Qualities

Depth: 3 to 10 inches to a claypan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Longcreek and Gumble soils and Torriorthents on hills
- Bucklake soils on north-facing hillsides
- Rock outcrop

Major Soil Limitations

Depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.

- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan.

262—Poall-Gumble complex, 2 to 20 percent slopes

Composition

Poall and similar soils—50 percent
Gumble and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Poall—slopes of 2 to 12 percent; Gumble—slopes of 10 to 20 percent
Parent material: Residuum
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 3,900 feet
Rangeland ecological site and characteristic vegetation: Poall—(SR Clayey 9-12PZ) bluebunch wheatgrass; Gumble—(SR Shallow 9-12PZ) bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Poall

0 to 8 inches—light brownish gray silt loam
8 to 17 inches—yellowish brown clay
17 to 33 inches—pale brown clay loam
33 to 45 inches—pale brown clay loam
45 to 65 inches—light yellowish brown gravelly clay loam

Properties and Qualities of Poall

Depth: 3 to 10 inches to a claypan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Gumble

0 to 3 inches—pale brown very gravelly silt loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Properties and Qualities of Gumble

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Longcreek soils and Torriorthents on hills
- Bucklake soils on north-facing hillslopes
- Rock outcrop

Major Soil Limitations

Poall and Gumble—shrink-swell potential, corrosivity
Poall—depth to a claypan
Gumble—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Poall and Gumble
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- The upper part of the soils is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Poall
- The claypan restricts the rooting depth.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan.

Gumble
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

263—Pomerening very gravelly loamy sand, 2 to 20 percent slopes

Composition

Pomerening and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills (fig. 10)
Slope features: Concave and convex
Parent material: Cinders and ash



Figure 10.—Area of Pomerening very gravelly loamy sand, 2 to 20 percent slopes, in the Diamond Craters Outstanding Natural Area.

Geology: Basalt
Elevation: 4,100 to 4,700 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ) basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—reddish gray very gravelly loamy sand
4 to 9 inches—reddish brown very gravelly loamy coarse sand
9 to 62 inches—weak red gravelly loamy coarse sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Excessively drained
Permeability: Very rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate

Contrasting Inclusions

- Flank soils on hills
- Rock outcrop

Major Soil Limitations

Available water capacity, wind erosion, seepage

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

264—Pomerening-Flank-Lava flows complex, 2 to 20 percent slopes

Composition

Pomerening and similar soils—40 percent
Flank and similar soils—25 percent
Lava flows—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Pomerening and Flank—side slopes; Lava flows—pressure ridges
Parent material: Cinders and ash
Geology: Basalt
Elevation: 4,100 to 4,700 feet
Rangeland ecological site and characteristic vegetation: Pomerening—(Sandy Loam 10-12PZ) basin big sagebrush, needleandthread, Thurber needlegrass; Flank—(Shallow Lava 10-12PZ) basin big sagebrush, Thurber needlegrass, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Pomerening

0 to 4 inches—reddish gray very gravelly sandy loam
4 to 9 inches—reddish brown very gravelly loamy coarse sand
9 to 62 inches—weak red gravelly loamy coarse sand

Properties and Qualities of Pomerening

Depth: More than 60 inches to bedrock
Drainage class: Excessively drained
Permeability: Very rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Flank

0 to 1 inch—dark grayish brown very gravelly sandy loam
1 to 9 inches—dark brown very gravelly sandy loam
9 inches—basalt

Properties and Qualities of Flank

Depth: 4 to 15 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Felcher soils on hills

Major Soil Limitations

Pomerening and Flank—available water capacity
Pomerening—seepage
Flank—depth to bedrock

Use and Management

Livestock Grazing

Pomerening and Flank
- The low available water capacity of the surface layer limits seedling survival.
- The areas of Lava flows restrict the movement of livestock.

Pomerening
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

Flank
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

265—Porterfield loam, 2 to 20 percent slopes

Composition

Porterfield and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex

Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Shallow 9-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 6 inches—light brownish gray loam
6 to 14 inches—pale brown loam
14 inches—diatomaceous earth

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Soils in the Upton Mountain area that are underlain by basalt and welded tuff
- Rock outcrop
- Legler soils on stream terraces
- Risley soils on hills

Major Soil Limitations

Depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

266—Porterfield very stony loam, 20 to 40 percent south slopes

Composition

Porterfield and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: South- and west-facing side slopes

Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (SR Shallow South 9-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 6 inches—light brownish gray very stony loam
6 to 14 inches—pale brown loam
14 inches—diatomaceous earth

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Westbutte soils on north-facing hillsides
- Arcia soils on hills at higher elevations
- Risley soils on footslopes of hills

Major Soil Limitations

Water erosion, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

267—Porterfield-Tincan-Rock outcrop association, 20 to 60 percent slopes

Composition

Porterfield and similar soils—50 percent
Tincan and similar soils—20 percent

Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Porterfield—south- and west-facing side slopes; Tincan—north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Porterfield and Tincan—tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,600 feet
Rangeland ecological site and characteristic vegetation: Porterfield—(SR Shallow South 9-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Tincan—(SR Mountain North 9-12PZ) Wyoming big sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Porterfield

0 to 6 inches—light brownish gray very stony loam
6 to 14 inches—pale brown loam
14 inches—diatomaceous earth

Properties and Qualities of Porterfield

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Tincan

0 to 16 inches—brown gravelly silt loam
16 inches—diatomaceous earth

Properties and Qualities of Tincan

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Westbutte soils on north-facing hillsides
- Arcia soils at higher elevations on hills
- Madeline soils on hillsides

Major Soil Limitations

Porterfield and Tincan—water erosion, slope, depth to bedrock
Porterfield—surface stones

Use and Management

Livestock Grazing

Porterfield and Tincan
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Porterfield
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope.

Tincan
- Steepness of slope restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope.

268—Poujade very fine sandy loam, 0 to 2 percent slopes

Composition

Poujade and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Low lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,100 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (Sodic Terrace 6-10PZ) basin big sagebrush, spiny hopsage, black greasewood, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—light brownish gray very fine sandy loam
4 to 6 inches—light brownish gray loam
6 to 9 inches—light brownish gray silty clay loam
9 to 13 inches—light yellowish brown silty clay loam
13 to 40 inches—light gray loam

40 to 58 inches—white silty clay loam and loam
58 to 65 inches—light gray fine sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus and Skidoosprings soils on lake plains
- Leathers soils on lake terraces

Major Soil Limitations

Wind erosion, alkalinity, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity.

269—Poujade very fine sandy loam, 2 to 5 percent slopes

Composition

Poujade and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Low lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Dry Basin) basin big sagebrush, black greasewood, basin wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches

Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—light brownish gray very fine sandy loam
4 to 6 inches—light brownish gray loam
6 to 9 inches—light brownish gray silty clay loam
9 to 13 inches—light yellowish brown silty clay loam
13 to 40 inches—light gray loam
40 to 58 inches—white silty clay loam and loam
58 to 65 inches—light gray fine sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus and Lolak soils on lake plains
- Crowcamp soils on low lake terraces
- Lawen soils on high lake terraces

Major Soil Limitations

Wind erosion, alkalinity, corrosivity

Use and Management

Irrigated Hayland

- Alkali-tolerant plants are the most suitable for planting. Sulphur amendments are needed if alfalfa or other crops are grown.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity.

270—Poujade-Ausmus complex, 0 to 2 percent slopes

Composition

Poujade and similar soils—50 percent
Ausmus and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Poujade—low lake terraces; Ausmus—lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Poujade—(Dry Basin) basin big sagebrush, black greasewood, basin wildrye; Ausmus (Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Poujade

0 to 4 inches—light brownish gray very fine sandy loam
4 to 6 inches—light brownish gray loam
6 to 9 inches—light brownish gray silty clay loam
9 to 13 inches—light yellowish brown silty clay loam
13 to 40 inches—light gray loam
40 to 58 inches—white silty clay loam and loam
58 to 65 inches—light gray fine sandy loam

Properties and Qualities of Poujade

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Ausmus

0 to 2 inches—light brownish gray fine sandy loam
2 to 16 inches—light brownish gray silty clay loam
16 to 29 inches—light brownish gray silt loam
29 to 69 inches—light yellowish brown loam

Properties and Qualities of Ausmus

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 3 inches

Hazard of erosion: Water—slight; wind—moderate
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Crowcamp and Lolak soils on lake plains
- Lawen soils on high lake terraces

Major Soil Limitations

Poujade and Ausmus—wind erosion, alkalinity, corrosivity
Ausmus—salinity, wetness

Use and Management

Livestock Grazing

Poujade and Ausmus
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Poujade
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity.

Ausmus
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

271—Raz cobbly fine sandy loam, 1 to 10 percent slopes

Composition

Raz and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and old alluvium
Geology: Welded tuff and basalt
Elevation: 4,400 to 4,900 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ)
basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—pale brown cobbly fine sandy loam
2 to 7 inches—light gray gravelly loam
7 to 12 inches—light gray loam
12 to 23 inches—indurated duripan
23 inches—welded tuff

Soil Properties and Qualities

Depth: 10 to 18 inches to a hardpan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Shrink-swell potential: Moderate
Corrosivity to steel: High
Potential frost action: Moderate

Contrasting Inclusions

- Anawalt, Brace, and Fourwheel soils on hills
- Rock outcrop

Major Soil Limitations

Wind erosion, depth to bedrock, depth to a hardpan, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Depth to bedrock limits the construction of water impoundments.
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush and greasewood increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity.

272—Raz-Brace complex, 2 to 20 percent slopes

Composition

Raz and similar soils—50 percent
Brace and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Colluvium and old alluvium
Geology: Basalt and welded tuff
Elevation: 4,100 to 5,800 feet

Rangeland ecological site and characteristic vegetation: Raz and Brace—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Raz

0 to 2 inches—pale brown very cobbly loam
2 to 7 inches—light gray gravelly clay loam
7 to 12 inches—light gray clay loam
12 to 23 inches—indurated duripan
23 inches—basalt

Properties and Qualities of Raz

Depth: 10 to 18 inches to a hardpan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Brace

0 to 6 inches—pale brown stony loam
6 to 13 inches—pale brown clay loam
13 to 21 inches—very pale brown loam
21 to 32 inches—yellow loam
32 to 36 inches—indurated duripan
36 inches—fractured basalt

Properties and Qualities of Brace

Depth: 20 to 37 inches to a hardpan and 22 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Actem soils on hills and plateaus
- Swalesilver soils in depressions of plateaus
- Playas

Major Soil Limitations

Raz and Brace—water erosion, depth to bedrock, depth to a hardpan, surface rock fragments
Raz—corrosivity, available water capacity

Use and Management

Livestock Grazing

Raz and Brace
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush,

and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.

Raz
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The upper part of the soil is saturated following snowmelt.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Brace
- Depth to the hardpan limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The suitability for seeding is fair because of the surface rock fragments.

273—Raz-Brace complex, low precipitation, 2 to 20 percent slopes

Composition

Raz and similar soils—50 percent
Brace and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Colluvium and old alluvium
Geology: Basalt and welded tuff
Elevation: 4,400 to 5,800 feet
Rangeland ecological site and characteristic vegetation: Raz and Brace—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass, spiny hopsage
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Raz

0 to 2 inches—pale brown very cobbly loam
2 to 7 inches—light gray gravelly clay loam
7 to 12 inches—light gray clay loam
12 to 23 inches—indurated duripan
23 inches—basalt

Properties and Qualities of Raz

Depth: 10 to 18 inches to a hardpan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches

Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Brace

0 to 6 inches—pale brown stony loam
6 to 13 inches—pale brown clay loam
13 to 21 inches—very pale brown loam
21 to 32 inches—yellow loam
32 to 36 inches—indurated duripan
36 inches—fractured basalt

Properties and Qualities of Brace

Depth: 20 to 37 inches to a hardpan and 22 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Catlow soils on terraces
- Actem soils on hills and plateaus
- Swalesilver soils in depressions of plateaus
- Rock outcrop

Major Soil Limitations

Raz and Brace—water erosion, depth to bedrock, depth to a hardpan, surface rock fragments
Raz—corrosivity, available water capacity

Use and Management

Livestock Grazing

Raz and Brace
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.

Raz
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The upper part of the soil is saturated following snowmelt.
- The suitability for seeding is poor because of droughtiness, the low available water capacity, and the surface rock fragments.

Brace
- Depth to hardpan limits the construction of water impoundments.
- The suitability for seeding is poor because of droughtiness and the surface rock fragments.

274—Reallis sandy loam, 3 to 8 percent slopes

Composition

Reallis and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ)
basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—light brownish gray sandy loam
9 to 17 inches—light brownish gray sandy loam
17 to 27 inches—light gray sandy loam
27 to 36 inches—light gray loamy sand
36 to 60 inches—multicolored loamy sand

Soil Properties and Qualities

Depth: 17 to 35 inches to hard, firm, brittle layer and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus soils on lake plains
- Lawen, Poujade, and Sandgap soils on lake terraces
- Vergas soils on alluvial fans
- Oreneva soils on hills

Major Soil Limitations

Wind erosion, seepage, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is good.

Irrigated Hayland

- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to this soil.
- This soil is well suited to use as irrigated hayland.

275—Reallis fine sandy loam, 0 to 3 percent slopes

Composition

Reallis and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,100 to 5,800 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—light brownish gray fine sandy loam
9 to 17 inches—light brownish gray sandy loam
17 to 27 inches—light gray sandy loam
27 to 36 inches—light gray loamy sand
36 to 60 inches—multicolored loamy sand

Soil Properties and Qualities

Depth: 17 to 35 inches to a hard, firm, brittle layer and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus, Lawen, and Poujade soils on lake terraces
- Sandgap soils on beach terraces

Major Soil Limitations

Wind erosion, seepage, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

Irrigated Hayland

- Because the infiltration rate is moderately rapid, sprinkler irrigation is best suited to this soil.
- This soil is well suited to use as irrigated hayland.

276—Reese loam, 0 to 1 percent slopes

Composition

Reese and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,400 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Lake Terrace) beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 10 inches—dark brown and brown loam
10 to 20 inches—brown clay loam
20 to 33 inches—brown loam
33 to 44 inches—light brownish gray coarse sandy loam
44 to 60 inches—light brownish gray loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in winter and spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Boravall soils on lake plains
- Enko soils on lake terraces

Major Soil Limitations

Available water capacity, wetness, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, beardless wildrye decreases and the soil becomes susceptible to invasion by goosefoot and povertyweed.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

277—Reluctan loam, 2 to 20 percent slopes

Composition

Reluctan and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt and welded tuff
Elevation: 4,000 to 5,600 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—11 to 13 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—brown loam
2 to 9 inches—brown sandy loam
9 to 15 inches—brown sandy clay loam

15 to 26 inches—light brownish gray sandy clay loam
26 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Carryback and Ninemile soils on hills and plateaus
- Westbutte soils on north-facing hillsides

Major Soil Limitations

Depth to bedrock, wind erosion, corrosivity

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is good.

278—Reluctan very stony silt loam, 2 to 20 percent slopes

Composition

Reluctan and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Plane and convex
Parent material: Residuum
Geology: Basalt and welded tuff
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—11 to 13 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—brown very stony silt loam
2 to 9 inches—brown sandy loam

9 to 15 inches—brown sandy clay loam
15 to 26 inches—light brownish gray sandy clay loam
26 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Brace soils on plateaus
- Reallis soils on terraces
- Vergas soils on fans

Major Soil Limitations

Surface stones, depth to bedrock, corrosivity

Use and Management

- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the surface stones.

279—Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes

Composition

Riddleranch and similar soils—40 percent
Lambring and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Riddleranch—south- and west-facing side slopes; Lambring—north- and east-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 4,200 to 5,100 feet
Rangeland ecological site and characteristic vegetation: Riddleranch—(Droughty South Slopes 11-13PZ) basin big sagebrush, bluebunch wheatgrass, Thurber needlegrass; Lambring—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—11 to 13 inches

Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Riddleranch

0 to 7 inches—brown very stony sandy loam
7 to 16 inches—brown very cobbly loam
16 to 27 inches—brown extremely stony loam
27 inches—basalt

Properties and Qualities of Riddleranch

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Pearlwise soils on north-facing hillsides
- Coztur and Robson soils on hillsides

Major Soil Limitations

Riddleranch and Lambring—water erosion, slope, surface stones
Riddleranch—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Riddleranch and Lambring
- The low available water capacity of the surface layer limits seedling survival.
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.

Riddleranch
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity, surface stones, and steepness of slope.

Lambring

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the surface stones and steepness of slope.

280—Riddleranch-Rock outcrop complex, 20 to 70 percent south slopes

Composition

Riddleranch and similar soils—50 percent
Rock outcrop—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Colluvium
Geology: Basalt and welded tuff
Elevation: 4,200 to 6,300 feet
Rangeland ecological site and characteristic vegetation: Riddleranch—(Droughty South Slopes 11-13PZ) basin big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—11 to 13 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Riddleranch

0 to 7 inches—brown very stony loam
7 to 16 inches—brown very cobbly loam
16 to 27 inches—brown extremely stony loam
27 inches—basalt

Properties and Qualities of Riddleranch

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Pearlwise soils on north-facing hillsides
- Coztur and Robson soils on hillsides
- Lambring soils on north-facing mountainsides

Major Soil Limitations

Riddleranch—water erosion, slope, surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope, surface stones, and low available water capacity.

281—Rinconflat stony loam, 3 to 10 percent slopes

Composition

Rinconflat and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,600 to 5,700 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—pale brown stony loam
4 to 13 inches—yellowish brown gravelly loam
13 to 23 inches—yellowish brown very cobbly loam
23 to 29 inches—yellowish brown very gravelly loam
29 to 57 inches—pale brown cobbly sandy loam
57 to 61 inches—yellowish brown very cobbly sandy clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Carvix and Stampede soils on stream terraces
- Felcher soils on south-facing hillsides

Major Soil Limitations

Surface rock fragments, corrosivity

Use and Management

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Surface rock fragments may restrict the operation of equipment.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is fair because of the surface rock fragments.

282—Rio King loam, 1 to 6 percent slopes

Composition

Rio King and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Loamy Bottom) basin wildrye
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 17 inches—brown loam
17 to 27 inches—brown sandy loam
27 to 45 inches—yellowish brown very fine sandy loam
45 to 64 inches—yellowish brown sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Davey soils on lake terraces
- Droval and Ozamis soils on lake plains

Major Soil Limitation

Corrosivity

Use and Management

Irrigated Hayland

- This soil is well suited to irrigated hayland.

Livestock Grazing

- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is good.

283—Rio King-Droval complex, 0 to 2 percent slopes

Composition

Rio King and similar soils—55 percent
Droval and similar soils—35 percent
Contrasting inclusions—10 percent

Setting

Landform: Rio King—stream terraces; Droval—lake plains
Position on landform: Rio King—slopes of 1 to 2 percent; Droval—slopes of 0 to 1 percent
Parent material: Rio King—alluvium; Droval—lacustrine sediment
Geology: Mixed igneous rock
Elevation: 4,100 to 4,400 feet
Rangeland ecological site and characteristic vegetation: Rio King—(Loamy Bottom) basin wildrye; Droval—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Rio King

0 to 17 inches—brown loam
17 to 27 inches—brown sandy loam
27 to 45 inches—yellowish brown very fine sandy loam
45 to 64 inches—yellowish brown sandy loam

Properties and Qualities of Rio King

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Droval

0 to 4 inches—light brownish gray loam
4 to 11 inches—grayish brown silty clay
11 to 22 inches—light brownish gray silty clay
22 to 32 inches—grayish brown clay
32 to 46 inches—pale brown silty clay
46 to 61 inches—pale brown clay
61 inches—highly fractured lacustrine sediment

Properties and Qualities of Droval

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in winter and spring
Permeability: Slow
Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Dixon soils on lake terraces
- Ozamis soils on lake plains

Major Soil Limitations

Rio King and Droval—corrosivity
Droval—shrink-swell potential, salinity, alkalinity, wetness

Use and Management

Irrigated Hayland

Rio King
- This soil is well suited to irrigated hayland.

Droval
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, sulphur amendments are needed because of the strong alkalinity of the soil.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

Rio King and Droval
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Rio King
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.

- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- As the site deteriorates, big sagebrush and bluegrasses increase and basin wildrye and willows decrease.
- The suitability for seeding is good.

Droval

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Crusting of the soil surface reduces infiltration, causes ponding, and restricts seedling emergence and survival.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- This unit is suited to grazing in winter.
- The surface of the soil becomes highly sodic with continued deterioration of the site.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and salinity.

284—Risley-Gumble complex, 2 to 20 percent slopes

Composition

Risley and similar soils—45 percent
Gumble and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,500 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Risley—(SR Clayey 9-12PZ) bluebunch wheatgrass; Gumble—(SR Shallow 9-12PZ) bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Risley

0 to 3 inches—light brownish gray gravelly loam
3 to 12 inches—grayish brown clay
12 to 25 inches—light olive brown gravelly clay
25 to 37 inches—light yellowish brown gravelly clay loam

37 to 39 inches—pale yellow very gravelly sandy clay loam
39 inches—tuffaceous sedimentary rock

Properties and Qualities of Risley

Depth: 1 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Gumble

0 to 3 inches—pale brown very gravelly silt loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Properties and Qualities of Gumble

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Longcreek soils and Torriorthents on hills
- Rock outcrop

Major Soil Limitations

Risley and Gumble—depth to bedrock, shrink-swell potential, corrosivity
Risley—depth to a claypan
Gumble—available water capacity

Use and Management

Livestock Grazing

Risley and Gumble

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- The upper part of the soils is saturated following snowmelt.

Risley

- The claypan restricts the rooting depth.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan.

Gumble

- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

285—Risley-Gumble-Torriorthents complex, 2 to 25 percent slopes

Composition

Risley and similar soils—40 percent
Gumble and similar soils—25 percent
Torriorthents and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,600 to 4,100 feet
Rangeland ecological site and characteristic vegetation: Risley—(SR Clayey 9-12PZ) bluebunch wheatgrass; Gumble—(SR Shallow 9-12PZ) bluebunch wheatgrass, Thurber needlegrass; Torriorthents—(SR Shallow Escarpment 9-12PZ) Wyoming big sagebrush, squaw apple, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Risley

0 to 3 inches—light brownish gray silty clay loam
3 to 12 inches—grayish brown clay
12 to 25 inches—light olive brown gravelly clay
25 to 37 inches—light yellowish brown gravelly clay loam
37 to 39 inches—pale yellow very gravelly sandy clay loam
39 inches—tuffaceous sedimentary rock

Properties and Qualities of Risley

Depth: 1 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Gumble

0 to 3 inches—pale brown very cobbly loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam

14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Properties and Qualities of Gumble

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Reference Profile of Torriorthents

0 to 7 inches—light brownish gray silty clay loam
7 inches—diatomaceous earth

Properties and Qualities of Torriorthents

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Rock outcrop
- Legler soils on stream terraces

Major Soil Limitations

Risley, Gumble, and Torriorthents—depth to bedrock
Risley and Gumble—shrink-swell potential, corrosivity
Gumble and Torriorthents—available water capacity
Risley—depth to a claypan
Gumble—surface rock fragments

Use and Management

Livestock Grazing

Risley, Gumble, and Torriorthents
- The upper part of the soils is saturated following snowmelt.

Risley and Gumble
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Gumble and Torriorthents
- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

Risley
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is very poor because of the depth to the claypan.

Gumble
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Torriorthents
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

286—Risley-Rock outcrop complex, 5 to 20 percent slopes

Composition

Risley and similar soils—60 percent
Rock outcrop—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Risley—tuffaceous sedimentary rock and diatomaceous earth; Rock outcrop—basalt dikes
Elevation: 3,500 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Risley—(SR Clayey 9-12PZ) bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Risley

0 to 3 inches—light brownish gray very stony loam
3 to 12 inches—grayish brown clay
12 to 25 inches—light olive brown gravelly clay
25 to 37 inches—light yellowish brown gravelly clay loam
37 to 39 inches—pale yellow very gravelly sandy clay loam
39 inches—tuffaceous sedimentary rock

Properties and Qualities of Risley

Depth: 1 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow

Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Longcreek soils and Torriorthents on hills
- Mahoon soils on steep, south-facing hillsides

Major Soil Limitations

Risley—surface stones, depth to bedrock, depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- The very stony surface layer and areas of Rock outcrop restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan and surface stones.

287—Robson-Anawalt complex, 2 to 15 percent slopes

Composition

Robson and similar soils—45 percent
Anawalt and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 5,700 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Robson—(Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass; Anawalt—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Robson

0 to 4 inches—light brownish gray cobbly clay loam
4 to 13 inches—brown very gravelly clay
13 inches—basalt

Properties and Qualities of Robson

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Anawalt

0 to 2 inches—light brownish gray gravelly loam
2 to 11 inches—light brownish gray clay loam
11 to 16 inches—brownish yellow clay
16 inches—fractured welded tuff

Properties and Qualities of Anawalt

Depth: 4 to 11 inches to a claypan and 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Fitzwater soils on north- and east-facing hillsides
- Carvix soils on stream terraces
- Rock outcrop and Rubble land

Major Soil Limitations

Robson and Anawalt—depth to bedrock, shrink-swell potential
Robson—available water capacity
Anawalt—depth to a claypan, corrosivity

Use and Management

Livestock Grazing

Robson and Anawalt

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.

Robson

- This soil is susceptible to invasion by cheatgrass and medusahead.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity.

Anawalt
- The claypan restricts the rooting depth.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the depth to the claypan.

288—Robson-Fourwheel complex, 3 to 30 percent slopes

Composition

Robson and similar soils—45 percent
Fourwheel and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Robson—slopes of 10 to 30 percent; Fourwheel—slopes of 3 to 12 percent
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,400 to 6,500 feet
Rangeland ecological site and characteristic vegetation: Robson and Fourwheel—(Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Robson

0 to 4 inches—light brownish gray very cobbly clay loam
4 to 13 inches—brown very gravelly clay
13 inches—basalt

Properties and Qualities of Robson

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Fourwheel

0 to 7 inches—gray and light brownish gray clay loam
7 to 14 inches—dark yellowish brown clay
14 to 22 inches—yellowish brown clay
22 inches—basalt

Properties and Qualities of Fourwheel

Depth: 4 to 11 inches to a claypan and 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Anawalt and Coztur soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Robson and Fourwheel—depth to bedrock, shrink-swell potential
Robson—available water capacity, water erosion
Fourwheel—depth to a claypan

Use and Management

Livestock Grazing

Robson and Fourwheel
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- These soils are susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.

Robson
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The suitability for seeding is very poor because of the low available water capacity.

Fourwheel
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The suitability for seeding is poor because of the depth to the claypan.

289—Robson-Felcher association, 3 to 70 percent slopes

Composition

Robson and similar soils—55 percent
Felcher and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Robson—slopes of 3 to 25 percent; Felcher—south- and west-facing slopes of 25 to 70 percent

Parent material: Colluvium and residuum
Geology: Basalt, andesite, and welded tuff
Elevation: 4,500 to 6,200 feet
Rangeland ecological site and characteristic vegetation: Robson—(Clayey 10-12PZ) Wyoming big sagebrush, bluebunch wheatgrass; Felcher—(South Slopes 8-12PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 100 days

Typical Profile of Robson

0 to 4 inches—light brownish gray very cobbly clay loam
4 to 13 inches—brown very gravelly clay
13 inches—basalt

Properties and Qualities of Robson

Depth: 12 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Typical Profile of Felcher

0 to 10 inches—light brownish gray very cobbly loam
10 to 22 inches—yellowish brown very gravelly clay loam
22 inches—basalt

Properties and Qualities of Felcher

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Brace soils on hills
- Fitzwater soils on north-facing hillsides
- Rock outcrop and Rubble land

Major Soil Limitations

Robson and Felcher—water erosion, depth to bedrock
Robson—available water capacity, shrink-swell potential
Felcher—slope

Use and Management

Livestock Grazing

Robson and Felcher

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Depth to bedrock and steepness of slope limit the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Robson
- The low available water capacity of the surface layer limits seedling survival.
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the low available water capacity.

Felcher
- Steepness of slope restricts the operation of ground seeding equipment.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the steepness of slope.

290—Roca very cobbly clay loam, 15 to 40 percent south slopes

Composition

Roca and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: South- and west-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and rhyolite
Elevation: 4,200 to 5,800 feet
Rangeland ecological site and characteristic vegetation: (South Slopes 8-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 8 inches—pale brown very cobbly clay loam
8 to 12 inches—yellowish brown very gravelly clay loam
12 to 16 inches—brown very gravelly clay
16 to 22 inches—light brown very cobbly clay loam
22 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow

Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Robson and Reluctan soils on hills

Major Soil Limitations

Available water capacity, water erosion, depth to bedrock, shrink-swell potential, corrosivity, surface rock fragments

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- The low available water capacity of the surface layer limits seedling survival.
- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

291—Rock outcrop and Rubble land, 20 to 60 percent slopes

Composition

Rock outcrop—60 percent
Rubble land—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains and hills (fig. 11)
Geology: Igneous rock
Elevation: 4,000 to 8,000 feet
Climatic factors:
Mean annual precipitation—10 to 40 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—30 to 80 days

Contrasting Inclusions

- Westbutte soils on north-facing side slopes
- Felcher soils on south-facing side slopes

Major Uses

Watershed and wildlife habitat



Figure 11.—Area of Rock outcrop and Rubble land, 20 to 60 percent slopes, which provides important habitat for raptors and prey species.

292—Rock outcrop-Baconcamp complex, 30 to 80 percent slopes

Composition

Rock outcrop—50 percent
Baconcamp and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and north-facing side slopes
Parent material: Colluvium
Geology: Basalt and andesite
Elevation: 5,100 to 9,700 feet
Rangeland ecological site and characteristic vegetation: Baconcamp—(Subalpine Slopes 16-35PZ) mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 40 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile of Baconcamp

0 to 4 inches—very dark grayish brown very gravelly loam
4 to 20 inches—very dark grayish brown gravelly loam
20 to 35 inches—very dark grayish brown very gravelly loam
35 inches—fractured basalt

Properties and Qualities of Baconcamp

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Krackle soils on side slopes
- Welch soils in swales and along drainageways

Major Soil Limitations

Water erosion, slope, depth to bedrock, cold climate

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Because of the snowpack, specially designed fences, such as laydown fences, should be constructed.
- As the site deteriorates, mountain big sagebrush, mountain brome, bottlebrush squirreltail and bluegrasses increase and fescue and needlegrasses decrease.
- The suitability for seeding is very poor because of the steepness of slope, short growing season, and areas of Rock outcrop.

293—Royst-Merlin complex, 2 to 20 percent slopes

Composition

Royst and similar soils—65 percent
Merlin and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, welded tuff, and andesite
Elevation: 4,700 to 5,400 feet
Rangeland ecological site and characteristic vegetation: Royst—(SR Dry Pine 14-16PZ) ponderosa pine, western juniper, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass, onespike oatgrass

Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Royst

0 to 3 inches—dark grayish brown very cobbly loam
3 to 7 inches—dark grayish brown cobbly loam
7 to 22 inches—brown very stony clay loam
22 to 23 inches—weathered tuff
23 inches—fractured welded tuff

Properties and Qualities of Royst

Depth: 20 to 35 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Merlin

0 to 7 inches—brown very cobbly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Observation and Ticino soils hills and plateaus
- Anatone soils on hills
- Rock outcrop

Major Soil Limitations

Royst and Merlin—surface rock fragments, depth to bedrock, shrink-swell potential, available water capacity
Merlin—depth to a claypan

Use and Management

Livestock Grazing

Royst and Merlin
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Depth to bedrock limits the construction of water impoundments.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Royst
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.

Merlin
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The claypan restricts the rooting depth.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

Forest Products

Royst
- Efficient operation of wheeled or tracked equipment is limited by the surface rock fragments.
- Surface mechanical site preparation is difficult because of the surface rock fragments.
- The surface rock fragments limit the effective use of equipment for deep mechanical site preparation and mechanical planting.
- Planting by hand is difficult because of the surface rock fragments.
- The seedling mortality rate is above normal because of the low available water capacity.
- Because of the surface rock fragments, fires of moderate fireline intensity may damage the soil. Consider alternative techniques if prescribed burning is used.

294—Rubble land-Nuss-Ateron association, 20 to 60 percent slopes

Composition

Rubble land—35 percent
Nuss and similar soils—30 percent
Ateron and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Nuss—south- and west-facing side slopes; Ateron—north- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Nuss—(SR Mountain Shallow South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Sandberg bluegrass, Thurber needlegrass; Ateron—(SR Mountain Shallow North 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches

Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Nuss

0 to 4 inches—grayish brown stony loam
4 to 12 inches—dark grayish brown gravelly loam
12 to 15 inches—dark grayish brown cobbly loam
15 inches—fractured basalt

Properties and Qualities of Nuss

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Ateron

0 to 5 inches—dark grayish brown extremely stony silt loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn and Westbutte soils on hills
- Roschene soils on stream terraces

Major Soil Limitations

Nuss and Ateron—water erosion, depth to bedrock, available water capacity, slope
Ateron—surface stones, shrink-swell potential

Use and Management

Livestock Grazing

Nuss and Ateron

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.

Nuss

- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the steepness of slope.

Ateron

- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones and steepness of slope.

295—Sagehen-Rock outcrop complex, 5 to 30 percent slopes

Composition

Sagehen and similar soils—75 percent
Rock outcrop—10 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains and hills
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 5,400 to 6,600 feet
Rangeland ecological site and characteristic vegetation: Sagehen—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Sagehen

0 to 10 inches—light brownish gray stony clay loam
10 to 19 inches—brown very gravelly clay loam
19 inches—basalt

Properties and Qualities of Sagehen

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Lonely and Robson soils on hillsides

Major Soil Limitations

Sagehen—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity.

296—Sagehen-Rock outcrop complex, 30 to 70 percent slopes

Composition

Sagehen and similar soils—75 percent
Rock outcrop—10 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt and andesite
Elevation: 5,400 to 7,100 feet
Rangeland ecological site and characteristic vegetation: Sagehen—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Sagehen

0 to 10 inches—light brownish gray stony clay loam
10 to 19 inches—brown very gravelly clay loam
19 inches—basalt

Properties and Qualities of Sagehen

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Lonely and Robson soils on hillsides

Major Soil Limitations

Sagehen—water erosion, slope, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is very poor because of the steepness of slope.

297—Sandgap sand, 3 to 8 percent slopes

Composition

Sandgap and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Sand dunes on lake plains
Slope features: Convex and plane
Parent material: Eolian sand
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ)
basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light brownish gray sand
2 to 6 inches—light brownish gray loamy sand
6 to 19 inches—yellowish brown loamy sand
19 to 30 inches—pale brown loamy sand
30 to 45 inches—light brownish gray loamy sand
45 to 60 inches—very pale brown sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- Poujade soils on low lake terraces
- Reallis soils on lake terraces
- Actem and Lonely soils on hills and plateaus

Major Soil Limitations

Available water capacity, corrosivity, wind erosion, seepage

Use and Management

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity of the surface layer.

298—Sandgap sand, 1 to 4 percent slopes, flooded

Composition

Sandgap and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,090 to 4,106 feet
Rangeland ecological site and characteristic vegetation: (Sodic Dunes) basin big sagebrush, black greasewood, Indian ricegrass, needleandthread
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light brownish gray sand
2 to 6 inches—light brownish gray loamy sand
6 to 19 inches—yellowish brown loamy sand
19 to 30 inches—pale brown loamy sand
30 to 45 inches—light brownish gray loamy sand
45 to 60 inches—very pale brown sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Frequency of ponding: Rare
Permeability: Moderate

Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- Duckclub and Thenarrows soils on lake plains
- Playas

Major Soil Limitations

Available water capacity, wind erosion, seepage, corrosivity

Use and Management

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- Severe site deterioration leads to unstable areas of windblown sand.
- As the site deteriorates, black greasewood and inland saltgrass increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, and Russian thistle.
- The suitability for seeding is poor because of the low available water capacity of the surface layer.

299—Seharney cobbly silt loam, 3 to 12 percent slopes

Composition

Seharney and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt and andesite
Elevation: 4,200 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Shallow Loam 8-10PZ)
Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—light gray cobbly silt loam
2 to 5 inches—pale brown silt loam
5 to 11 inches—pale brown cobbly silt loam
11 to 17 inches—very pale brown very cobbly silt loam
17 to 24 inches—very pale brown strongly cemented duripan
24 inches—fractured basalt

Soil Properties and Qualities

Depth: 10 to 20 inches to a hardpan and 20 to 30 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Raz and Robson soils on hills and plateaus
- Rock outcrop

Major Soil Limitations

Depth to bedrock, depth to a hardpan, available water capacity

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- The cemented hardpan restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is poor because of the low available water capacity.

300—Skedaddle-Atlow-Rock outcrop complex, 5 to 30 percent slopes

Composition

Skedaddle and similar soils—45 percent
Atlow and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Skedaddle—side slopes; Atlow—ridges
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and rhyolite
Elevation: 4,300 to 5,300 feet
Rangeland ecological site and characteristic vegetation: Skedaddle—(Desert Loam 6-10PZ) shadscale, bud sagebrush, Indian ricegrass; Atlow—(Shallow Loam 8-10PZ) Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Skedaddle

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 8 inches—grayish brown very cobbly clay loam
8 to 11 inches—light brown very cobbly clay loam
11 inches—fractured basalt

Properties and Qualities of Skedaddle

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Atlow

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Properties and Qualities of Atlow

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Vining soils on hills
- McConnel soils on lake terraces
- Rock outcrop

Major Soil Limitations

Skedaddle and Atlow—water erosion, depth to bedrock, available water capacity
Atlow—surface stones

Use and Management

Livestock Grazing

Skedaddle and Atlow

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- This unit is suited to grazing in winter.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and areas of Rock outcrop.

Skedaddle

- As the site deteriorates, shadscale, annual forbs, and cheatgrass increase and bud sagebrush, Indian ricegrass, and bottlebrush squirreltail decrease.

Atlow

- The very stony surface layer restricts the operation of ground seeding equipment.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.

301—Skedaddle-Atlow-Rock outcrop complex, 30 to 50 percent slopes

Composition

Skedaddle and similar soils—45 percent
Atlow and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Skedaddle—side slopes; Atlow—ridges
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and rhyolite
Elevation: 4,300 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Skedaddle—(Droughty Shallow Slopes 6-10PZ) shadscale, bud sagebrush, Indian ricegrass; Atlow—(Shallow Loamy Slopes 6-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Skedaddle

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 8 inches—grayish brown very cobbly clay loam
8 to 11 inches—light brown very cobbly clay loam
11 inches—fractured basalt

Properties and Qualities of Skedaddle

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Atlow

0 to 3 inches—light brownish gray very stony loam
3 to 11 inches—brown very cobbly clay loam
11 inches—basalt

Properties and Qualities of Atlow

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Vining soils on hills
- McConnel soils on lake terraces

Major Soil Limitations

Skedaddle and Atlow—water erosion, slope, depth to bedrock, available water capacity
Atlow—surface stones

Use and Management

Livestock Grazing

Skedaddle and Atlow
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Steepness of slope and the areas of Rock outcrop restrict the operation of ground seeding equipment.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, steepness of slope, and areas of Rock outcrop.
- This unit is suited to grazing in winter.

Skedaddle
- As the site deteriorates, shadscale, Sandberg bluegrass, and bottlebrush squirreltail increase and bud sagebrush and Indian ricegrass decrease.

Atlow
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and Indian ricegrass and needlegrasses decrease.

302—Skedaddle-Rock outcrop complex, 40 to 70 percent slopes

Composition

Skedaddle and similar soils—70 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and rhyolite
Elevation: 4,300 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Skedaddle—(Droughty Shallow Slopes 6-10PZ) shadscale, bud sagebrush, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Skedaddle

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 8 inches—grayish brown very cobbly clay loam
8 to 11 inches—light brown very cobbly clay loam
11 inches—fractured basalt

Properties and Qualities of Skedaddle

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—severe; wind—slight

Contrasting Inclusions

- Actem and Atlow soils on mountainsides and hillsides
- Rock outcrop

Major Soil Limitations

Water erosion, slope, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- This unit is suited to grazing in winter.
- As the site deteriorates, shadscale, Sandberg bluegrass, and bottlebrush squirreltail increase and bud sagebrush and Indian ricegrass decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, steepness of slope, and areas of Rock outcrop.

303—Skedaddle association, 30 to 50 percent slopes

Composition

Skedaddle, south slopes, and similar soils—45 percent
Skedaddle, north slopes, and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and mountains
Position on landform: Skedaddle, south slopes—south- and west-facing side slopes; Skedaddle, north slopes—north- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Basalt, andesite, and rhyolite
Elevation: 4,200 to 5,300 feet

Rangeland ecological site and characteristic vegetation: Skedaddle, south slopes—(South Slopes 6-10PZ) ephedra, purple sage, desert needlegrass, Indian ricegrass; Skedaddle, north slopes—(North Slopes 6-10PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Skedaddle, South Slopes

0 to 3 inches—light brownish gray very gravelly sandy loam
3 to 8 inches—grayish brown very cobbly clay loam
8 to 11 inches—light brown very cobbly clay loam
11 inches—fractured basalt

Typical Profile of Skedaddle, North Slopes

0 to 3 inches—light brownish gray very cobbly clay loam
3 to 8 inches—grayish brown very cobbly clay loam
8 to 11 inches—light brown very cobbly clay loam
11 inches—fractured basalt

Properties and Qualities of Skedaddle, South and North Slopes

Depth: 7 to 12 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—moderate (south slopes)

Contrasting Inclusions

- Actem and Atlow soils on hills
- McConnel soils on lake terraces
- Rock outcrop

Major Soil Limitations

Skedaddle, south and north slopes—water erosion, slope, depth to bedrock, available water capacity
Skedaddle, south slopes—wind erosion

Use and Management

Livestock Grazing

Skedaddle, south and north slopes
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- This unit is suited to grazing in winter.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is very poor because of the low available water capacity, steepness of slope, and depth to bedrock.

Skedaddle, south slopes
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- As the site deteriorates, ephedra and purple sage increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.

Skedaddle, north slopes
- As the site deteriorates, ephedra and big sagebrush increase and bluebunch wheatgrass and Thurber needlegrass decrease.

304—Skidoosprings sandy loam, 0 to 3 percent slopes

Composition

Skidoosprings and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Concave and convex
Parent material: Lacustrine sediment
Elevation: 4,100 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 11 inches—pale brown sandy loam
11 to 41 inches—pale brown sandy loam
41 to 49 inches—indurated duripan
49 to 60 inches—very pale brown coarse sandy loam

Soil Properties and Qualities

Depth: 40 to 50 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Crowcamp, Fury, Opie, and Widowspring soils on lake plains

Major Soil Limitations

Wind erosion, wetness, seepage, frost action, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The risk of seepage limits the construction of water impoundments.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and moderate salinity.

305—Skidoosprings sandy loam, 0 to 1 percent slopes, flooded

Composition

Skidoosprings and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,090 to 4,106 feet
Rangeland ecological site and characteristic vegetation: (Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 11 inches—pale brown sandy loam
11 to 41 inches—pale brown sandy loam
41 to 49 inches—indurated duripan
49 to 60 inches—very pale brown coarse sandy loam

Soil Properties and Qualities

Depth: 40 to 50 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate

Alkalinity: Strong
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Duckclub and Thenarrows soils on lake plains
- Poujade soils on low lake terraces

Major Soil Limitations

Wind erosion, wetness, seepage, salinity, alkalinity, corrosivity, frost action

Use and Management

Livestock Grazing

- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The risk of seepage limits the construction of water impoundments.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and moderate salinity.

306—Skunkfarm-Cumulic Haploxerolls complex, 0 to 2 percent slopes

Composition

Skunkfarm and similar soils—65 percent
Cumulic Haploxerolls and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Position on landform: Skunkfarm—plane areas; Cumulic Haploxerolls—concave and convex areas adjacent to streambanks
Parent material: Lacustrine sediment
Elevation: 4,100 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Skunkfarm—(Basin Dry Meadow) beardless wildrye; Cumulic Haploxerolls—(Basin Willow) sandbar willow, yellow willow, broadleaf arrowhead
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Skunkfarm

0 to 2 inches—very dark grayish brown silt loam
2 to 13 inches—very dark grayish brown and brown clay loam

13 to 18 inches—pale brown clay loam
18 to 29 inches—pale brown loam
29 to 60 inches—brown fine sandy loam

Properties and Qualities of Skunkfarm

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Reference Profile of Cumulic Haploxerolls

0 to 5 inches—dark grayish brown loam
5 to 25 inches—dark gray loam
25 to 54 inches—light brownish gray loam
54 to 60 inches—light brownish gray very gravelly sandy loam

Properties and Qualities of Cumulic Haploxerolls

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Water table: Present in spring
Ponding: Present in spring
Permeability: Moderate
Available water capacity: Variable
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Fury, Housefield, and Doubleo soils on lake plains

Major Soil Limitations

Skunkfarm and Cumulic Haploxerolls—wetness
Skunkfarm—corrosivity, frost action

Use and Management

Irrigated Hayland

- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- This unit provides important food and cover for wetland wildlife.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Livestock Grazing

- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.

- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The suitability for seeding is good.

307—Skunkfarm-Doubleo complex, 0 to 1 percent slopes

Composition

Skunkfarm and similar soils—45 percent
Doubleo and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Skunkfarm—plane; Doubleo—plane and concave
Parent material: Lacustrine sediment
Elevation: 4,120 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Skunkfarm—(Basin Dry Meadow) beardless wildrye; Doubleo—(Semi-Wet Marsh) cattail
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Skunkfarm

0 to 2 inches—very dark grayish brown silt loam
2 to 13 inches—very dark grayish brown and brown clay loam
13 to 18 inches—pale brown clay loam
18 to 29 inches—pale brown loam
29 to 60 inches—brown fine sandy loam

Properties and Qualities of Skunkfarm

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Doubleo

0 to 3 inches—dark grayish brown loam
3 to 10 inches—dark gray silty clay
10 to 20 inches—dark grayish brown clay
20 to 28 inches—gray clay loam
28 to 45 inches—light brownish gray fine sandy loam
45 to 60 inches—pale brown loam

Properties and Qualities of Doubleo

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring and summer
Water table: Present in spring and summer
Permeability: Very slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Fury, Housefield, and Skidoosprings soils on lake plains
- Mcbain soils on low lake terraces

Major Soil Limitations

Skunkfarm and Doubleo—wetness, corrosivity, frost action
Doubleo—shrink-swell potential

Use and Management

Irrigated Hayland

- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Livestock Grazing

Skunkfarm and Doubleo
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Grazing should be managed to maintain or increase the abundance of plants that help to keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Skunkfarm
- The suitability for seeding is good.

Doubleo
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of wetness.

308—Skunkfarm-Mcbain-Doubleo complex, 0 to 2 percent slopes

Composition

Skunkfarm and similar soils—35 percent
Mcbain and similar soils—30 percent
Doubleo and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Skunkfarm and Doubleo—lake plains; Mcbain—low lake terraces
Slope features: Skunkfarm—plane; Mcbain—convex; Doubleo—plane and concave
Parent material: Lacustrine sediment
Elevation: 4,100 to 4,200 feet
Rangeland ecological site and characteristic vegetation: Skunkfarm—(Basin Dry Meadow) beardless wildrye; Mcbain—(Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye; Doubleo—(Semi-Wet Marsh) cattail
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Skunkfarm

0 to 2 inches—very dark grayish brown silt loam
2 to 13 inches—very dark grayish brown and brown clay loam
13 to 18 inches—pale brown clay loam
18 to 29 inches—pale brown loam
29 to 60 inches—brown fine sandy loam

Properties and Qualities of Skunkfarm

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Mcbain

0 to 5 inches—light brownish gray silt loam
5 to 22 inches—pale brown and light gray loam
22 to 27 inches—light brownish gray clay loam
27 to 37 inches—pale brown very fine sandy loam
37 to 43 inches—grayish brown clay loam
43 to 60 inches—pale brown loam

Properties and Qualities of Mcbain

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present in spring
Permeability: Moderately slow

Available water capacity: About 7 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Strong
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Doubleo

0 to 3 inches—dark grayish brown loam
3 to 10 inches—dark gray silty clay
10 to 20 inches—dark grayish brown clay
20 to 28 inches—gray clay loam
28 to 45 inches—light brownish gray fine sandy loam
45 to 60 inches—pale brown loam

Properties and Qualities of Doubleo

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring and summer
Water table: Present in spring and summer
Permeability: Very slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Fury, Housefield, and Skidoosprings soils on lake plains

Major Soil Limitations

Skunkfarm, Mcbain, and Doubleo—corrosivity
Skunkfarm and Doubleo—wetness, frost action
Mcbain—salinity, alkalinity
Doubleo—shrink-swell potential

Use and Management

Irrigated Hayland

Skunkfarm and Doubleo
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Ponding and a seasonal high water table restrict haying and grazing. Soil wetness increases the risk of winterkill of plants.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in restricted plant growth.
- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Mcbain
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

Skunkfarm, Mcbain, and Doubleo
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Skunkfarm and Doubleo
- These soils provide important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- Grazing should be managed to maintain or increase the abundance of plants that help to keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.

Skunkfarm
- The suitability for seeding is good.

Mcbain
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is very poor because of the strong salinity and alkalinity.

Doubleo
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The suitability for seeding is very poor because of wetness.

309—Skunkfarm-Skidoosprings complex, 0 to 2 percent slopes

Composition

Skunkfarm and similar soils—60 percent
Skidoosprings and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Skunkfarm—plane and convex; Skidoosprings—plane and concave
Parent material: Lacustrine sediment
Elevation: 4,115 to 4,120 feet
Rangeland ecological site and characteristic vegetation: Skunkfarm—(Basin Dry Meadow) beardless wildrye; Skidoosprings—(Sodic Bottom) black greasewood, basin wildrye, inland saltgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Skunkfarm

0 to 2 inches—very dark grayish brown silt loam
2 to 13 inches—very dark grayish brown and brown clay loam
13 to 18 inches—pale brown clay loam
18 to 29 inches—pale brown loam
29 to 60 inches—brown fine sandy loam

Properties and Qualities of Skunkfarm

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Skidoosprings

0 to 11 inches—pale brown sandy loam
11 to 41 inches—pale brown sandy loam
41 to 49 inches—indurated duripan
49 to 60 inches—very pale brown coarse sandy loam

Properties and Qualities of Skidoosprings

Depth: 40 to 50 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Doubleo, Fury, and Housefield soils on lake plains
- Mcbain soils on low lake terraces

Major Soil Limitations

Skunkfarm and Skidoosprings—corrosivity, frost action, wetness
Skidoosprings—wind erosion, seepage, salinity, alkalinity

Use and Management

Irrigated Hayland

Skunkfarm and Skidoosprings

- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.

- The seasonal high water table provides supplemental water for adapted plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.

Skidoosprings
- The salinity and alkalinity limit the types of crops that can be grown.
- Salt- and alkali-tolerant plants are the most suitable for planting.
- If alfalfa or other crops are grown, sulphur amendments are needed because of the strong alkalinity of the soil.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.
- Practices that help to control wind erosion include planting crops at right angles to the prevailing wind, maintaining crop residue on the soil surface, planting field windbreaks, stripcropping, planting cover crops, using minimum tillage, minimizing the areas of barren soil, and leaving the soil surface rough.

Livestock Grazing

Skunkfarm and Skidoosprings
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soils are wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Skunkfarm
- Grazing should be managed to maintain or increase the abundance of plants that help to keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- The suitability for seeding is good.

Skidoosprings
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, inland saltgrass and black greasewood increase and basin wildrye decreases.
- The suitability for seeding is very poor because of the strong alkalinity and moderate salinity.

310—Spangenburg silty clay loam, 0 to 1 percent slopes

Composition

Spangenburg and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,500 to 4,600 feet

Rangeland ecological site and characteristic vegetation: (Clayey Playette) Wyoming big sagebrush, bottlebrush squirreltail, Thurber needlegrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—light brownish gray silty clay loam
2 to 6 inches—pale brown and pale yellowish brown silty clay
6 to 15 inches—yellowish brown silty clay
15 to 34 inches—pale brown silty clay loam
34 to 60 inches—very pale brown loam

Soil Properties and Qualities

Depth: 2 to 10 inches to a claypan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Swaler, Swalesilver, and Boulder Lake soils in depressions of lake terraces
- Fury soils on lake plains

Major Soil Limitations

Depth to a claypan, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.
- This soil is susceptible to invasion by povertyweed and Russian thistle.
- The suitability for seeding is poor because of the depth to the claypan.

311—Spangenburg silty clay loam, moist, 0 to 1 percent slopes

Composition

Spangenburg and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment

Elevation: 4,500 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 10 inches—light brownish gray silty clay loam
10 to 15 inches—yellowish brown silty clay
15 to 34 inches—pale brown silty clay loam
34 to 60 inches—very pale brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Swaler, Swalesilver, and Boulder Lake soils in depressions of lake terraces
- Fury soils on lake plains

Major Soil Limitations

Shrink-swell potential, corrosivity

Use and Management

Irrigated Hayland

- The slow permeability of the clayey layer restricts water percolation. During the period of snowmelt and runoff in spring, the soil surface becomes saturated. To avoid soil compaction or rutting and to maintain soil tilth, the use of equipment should be deferred until the soil is adequately drained.

Livestock Grazing

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.

312—Spangenburg silty clay loam, thick surface, 0 to 2 percent slopes

Composition

Spangenburg and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,500 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Loamy 8-10PZ)
Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 10 inches—light brownish gray silty clay loam
10 to 15 inches—yellowish brown silty clay
15 to 34 inches—pale brown silty clay loam
34 to 60 inches—very pale brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Norad and Berdugo soils on lake terraces
- Swaler, Swalesilver, and Boulder Lake soils in depressions of lake terraces

Major Soil Limitations

Shrink-swell potential, corrosivity

Use and Management

Irrigated Hayland

- The slow permeability of the clayey layer restricts water percolation. During the period of snowmelt and runoff in spring, the soil surface becomes saturated. To avoid soil compaction or rutting and to maintain soil tilth, the use of equipment should be deferred until the soil is adequately drained.

Livestock Grazing

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.

313—Srednic-Aval complex, 2 to 20 percent slopes

Composition

Srednic and similar soils—60 percent
Aval and similar soils—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Cinders and eolian sand
Geology: Basalt and welded tuff
Elevation: 4,100 to 4,700 feet
Rangeland ecological site and characteristic vegetation: (Sandy Loam 10-12PZ) basin big sagebrush, needleandthread, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Srednic

0 to 2 inches—brown very gravelly coarse sandy loam
2 to 6 inches—brown gravelly loam
6 to 17 inches—brown gravelly sandy loam
17 to 25 inches—pale brown gravelly loam
25 to 27 inches—light gray, white, and very pale brown strongly cemented duripan
27 to 30 inches—light gray, white, and very pale brown indurated duripan
30 inches—welded tuff

Properties and Qualities of Srednic

Depth: 20 to 40 inches to a hardpan and 25 to 50 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Aval

0 to 2 inches—dark grayish brown very gravelly coarse sandy loam
2 to 7 inches—grayish brown gravelly sandy loam
7 to 18 inches—brown gravelly coarse sandy loam
18 inches—welded tuff

Properties and Qualities of Aval

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Vining soils on hills
- Rock outcrop

Major Soil Limitations

Srednic and Aval—water erosion, available water capacity, depth to bedrock
Srednic—depth to a hardpan

Use and Management

Livestock Grazing

Srednic and Aval
- The low available water capacity of the surface layer limits seedling survival.
- As the site deteriorates, big sagebrush increases and Indian ricegrass and needlegrasses decrease.

Srednic
- Depth to the hardpan and to bedrock limit the construction of water impoundments.
- The suitability for seeding is poor because of the low available water capacity.

Aval
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- The suitability for seeding is very poor because of the low available water capacity.

314—Stampede loam, 1 to 5 percent slopes

Composition

Stampede and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Convex
Parent material: Old alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Droughty Loam 11-13PZ) basin big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—brown loam
3 to 11 inches—brown clay loam
11 to 19 inches—yellowish brown clay
19 to 23 inches—very pale brown very gravelly sandy clay loam
23 to 33 inches—indurated duripan
33 to 60 inches—pale brown gravelly sandy loam

Soil Properties and Qualities

Depth: 20 to 40 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained

Permeability: Very slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Pernty soils on hillsides
- Carvix soils on stream terraces
- Enko soils on lake terraces

Major Soil Limitations

Depth to a hardpan, shrink-swell potential, corrosivity, available water capacity

Use and Management

Livestock Grazing

- Depth to the hardpan limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and needlegrasses, Idaho fescue, and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

315—Swaler silt loam, 0 to 1 percent slopes

Composition

Swaler and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Position on landform: Depressions
Parent material: Lacustrine sediment
Elevation: 4,500 to 4,600 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 10 inches—light gray silt loam
10 to 18 inches—light brownish gray silty clay
18 to 27 inches—brown silty clay
27 to 60 inches—pale brown silty clay loam

Soil Properties and Qualities

Depth: 3 to 14 inches to a claypan and more than 60 inches to bedrock
Drainage class: Moderately well drained

Frequency of ponding: Rare
Permeability: Very slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Swalesilver soils in closed depressions of plateaus
- Carryback soils on hills

Major Soil Limitations

Shrink-swell potential, corrosivity, depth to a claypan

Use and Management

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The claypan restricts the rooting depth.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the depth to the claypan.

316—Swaler-Swalesilver association, 0 to 2 percent slopes

Composition

Swaler and similar soils—70 percent
Swalesilver and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Plateaus
Slope features: Swaler—plane; Swalesilver—concave
Parent material: Lacustrine sediment
Elevation: 4,200 to 5,700 feet
Rangeland ecological site and characteristic vegetation: Swaler—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass; Swalesilver—(Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Swaler

0 to 10 inches—light gray silt loam
10 to 18 inches—light brownish gray silty clay
18 to 27 inches—brown silty clay
27 to 60 inches—pale brown silty clay loam

Properties and Qualities of Swaler

Depth: 3 to 14 inches to a claypan and more than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Permeability: Very slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Swalesilver

0 to 3 inches—very pale brown silt loam
3 to 6 inches—light gray silt loam
6 to 18 inches—light brownish gray clay
18 to 23 inches—light brownish gray clay
23 to 49 inches—light gray silt loam
49 to 61 inches—pale yellow silt loam

Properties and Qualities of Swalesilver

Depth: 2 to 11 inches to a claypan and more than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present late in winter and in spring
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Playas
- Reallis soils on lake terraces

Major Soil Limitations

Swaler and Swalesilver—shrink-swell potential, corrosivity, depth to a claypan
Swalesilver—wetness

Use and Management

Livestock Grazing

Swaler and Swalesilver

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- The claypan restricts the rooting depth.

Swaler

- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the depth to the claypan.

Swalesilver

- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Silver sagebrush resprouts following fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is very poor because of the depth to the claypan.

317—Swalesilver silt loam, 0 to 2 percent slopes

Composition

Swalesilver and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus (fig. 12)
Position on landform: Depressions
Parent material: Lacustrine sediment
Elevation: 4,200 to 5,700 feet
Rangeland ecological site and characteristic vegetation: (Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—10 to 14 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—very pale brown silt loam
3 to 6 inches—light gray silt loam
6 to 18 inches—light brownish gray clay



Figure 12.—Area of Swalesilver silt loam, 0 to 2 percent slopes. This soil is ponded in spring.

18 to 23 inches—light brownish gray clay
23 to 49 inches—light gray silt loam
49 to 61 inches—pale yellow silt loam

Soil Properties and Qualities

Depth: 2 to 11 inches to a claypan and more than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present late in winter and in spring
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Playas
- Reallis soils on lake terraces
- Swaler soils in depressions of higher terraces

Major Soil Limitations

Wetness, shrink-swell potential, corrosivity, depth to a claypan

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- The claypan restricts the rooting depth.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Silver sagebrush resprouts following fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is very poor because of the depth to the claypan.

318—Swalesilver silt loam, dry, 0 to 2 percent slopes

Composition

Swalesilver and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Position on landform: Depressions
Parent material: Lacustrine sediment
Elevation: 4,400 to 5,300 feet
Rangeland ecological site and characteristic vegetation: (Shallow Swale 10-14PZ) low sagebrush, Sandberg bluegrass

Climatic factors:
Mean annual precipitation—10 to 14 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—very pale brown silt loam
3 to 6 inches—light gray silt loam
6 to 18 inches—light brownish gray clay
18 to 23 inches—light brownish gray clay
23 to 49 inches—light gray silt loam
49 to 61 inches—pale yellow silt loam

Soil Properties and Qualities

Depth: 2 to 11 inches to a claypan and more than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Frequency of ponding: Rare
Water table: Present late in winter and in spring
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Vergas soils on alluvial fans
- Playas

Major Soil Limitations

Depth to claypan, wetness, shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

- The claypan restricts the rooting depth.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, low sagebrush increases and Sandberg bluegrass decreases.
- The suitability for seeding is very poor because of the depth to the claypan.

319—Swalesilver silt loam, 0 to 1 percent slopes, flooded

Composition

Swalesilver and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane

Parent material: Lacustrine sediment
Elevation: 4,090 to 4,106 feet
Rangeland ecological site and characteristic vegetation: (Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—very pale brown silt loam
3 to 6 inches—light gray silt loam
6 to 18 inches—light brownish gray clay
18 to 23 inches—light brownish gray clay
23 to 49 inches—light gray silt loam
49 to 61 inches—pale yellow silt loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Frequency of ponding: Rare
Water table: Present late in winter and early in spring
Permeability: Very slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Duckclub and Thenarrows soils on lake plains

Major Soil Limitations

Depth to a claypan, wetness, shrink-swell potential, corrosivity

Use and Management

Irrigated Hayland

- The very slow permeability of the clayey layer restricts water percolation. During the period of snowmelt and runoff in spring, the soil surface becomes saturated. To avoid soil compaction or rutting and to maintain soil tilth, the use of equipment should be deferred until the soil is adequately drained.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets.

Livestock Grazing

- The claypan restricts the rooting depth.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Silver sagebrush resprouts following fire.

- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is very poor because of the depth to the claypan.

320—Teguro gravelly loam, 5 to 20 percent slopes

Composition

Teguro and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 5,200 to 5,900 feet
Rangeland ecological site and characteristic vegetation: (Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—grayish brown gravelly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Wagontire soils on fans
- Borobey soils on terraces
- Rock outcrop

Major Soil Limitations

Depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity.

321—Teguro very cobbly loam, 2 to 20 percent slopes

Composition

Teguro and similar soils—90 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,100 to 5,400 feet
Rangeland ecological site and characteristic vegetation: (JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—grayish brown very cobbly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Merlin and Vitale soils on hills and plateaus
- Westbutte soils on north-facing hillsides
- Rock outcrop

Major Soil Limitations

Depth to bedrock, available water capacity, surface rock fragments

Use and Management

Livestock Grazing

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and

Idaho fescue, bluebunch wheatgrass, onespike oatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

322—Teguro very stony loam, thin surface, 2 to 20 percent slopes

Composition

Teguro and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 4,500 to 6,100 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 2 inches—grayish brown very stony loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Soil Properties and Qualities

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Merlin and Vitale soils on hills
- Westbutte soils on steep, north-facing hillsides
- Rock outcrop

Major Soil Limitations

Surface stones, depth to bedrock, available water capacity

Use and Management

Livestock Grazing

- The very stony surface layer restricts the operation of ground seeding equipment.
- Bedrock restricts the rooting depth and limits the construction of water impoundments.

- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- This unit commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is very poor because of the low available water capacity and surface stones.

323—Teguro-Anatone complex, 2 to 20 percent slopes

Composition

Teguro and similar soils—45 percent
Anatone, moist, and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt and welded tuff
Elevation: 5,200 to 5,800 feet
Rangeland ecological site and characteristic vegetation: Teguro—(SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Anatone—(SR Dry Pine 14-16PZ) ponderosa pine, western juniper, mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Teguro

0 to 2 inches—grayish brown very gravelly loam
2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Anatone, Moist

0 to 8 inches—grayish brown very gravelly loam
8 to 14 inches—brown very gravelly loam
14 inches—fractured welded tuff

Properties and Qualities of Anatone, Moist

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderate

Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Doyn, Gaib, Merlin, Observation, and Ticino soils on hills
- Rock outcrop and Rubble land

Major Soil Limitations

Depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Teguro and Anatone
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is very poor because of the low available water capacity.

Forest Products

Anatone
- Roads and landings are very difficult to construct because of the shallow depth to bedrock.
- The shallow soil depth prevents the use of equipment.
- The seedling mortality rate is high because of the low available water capacity.
- The risk of windthrow is high because of the shallow depth to bedrock.

324—Teguro-Ateron complex, 2 to 20 percent slopes

Composition

Teguro and similar soils—55 percent
Ateron and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, welded tuff, and andesite
Elevation: 5,100 to 5,800 feet
Rangeland ecological site and characteristic vegetation: Teguro—(SR Mountain Shallow 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Ateron—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Teguro

0 to 2 inches—grayish brown very cobbly loam

2 to 5 inches—grayish brown loam
5 to 10 inches—brown cobbly clay loam
10 to 14 inches—yellowish brown cobbly clay loam
14 inches—welded tuff

Properties and Qualities of Teguro

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Ateron

0 to 5 inches—dark grayish brown very stony loam
5 to 12 inches—grayish brown very cobbly clay loam
12 to 18 inches—grayish brown extremely stony clay
18 inches—highly fractured basalt

Properties and Qualities of Ateron

Depth: 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Gaib, Merlin, Observation, and Ticino soils on hills
- Rock outcrop and Rubble land
- Welch soils in drainageways

Major Soil Limitations

Teguro and Ateron—available water capacity, surface rock fragments, depth to bedrock
Ateron—shrink-swell potential

Use and Management

Livestock Grazing

Teguro and Ateron

- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The surface rock fragments restrict the operation of ground seeding equipment.

Teguro

- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue decreases.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Ateron

- The upper part of the soil is saturated following snowmelt.

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

325—Thenarrows-Duckclub complex, 0 to 1 percent slopes

Composition

Thenarrows and similar soils—50 percent
Duckclub and similar soils—40 percent
Contrasting inclusions—10 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,090 to 4,105 feet
Rangeland ecological site and characteristic vegetation: Thenarrows—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass; Duckclub—(Sodic Lake Terrace) black greasewood, inland saltgrass, Lemmon's alkaligrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Thenarrows

0 to 14 inches—dark gray sandy loam
14 to 22 inches—dark grayish brown loamy sand
22 to 54 inches—light brownish gray sandy loam
54 to 60 inches—grayish brown loamy sand

Properties and Qualities of Thenarrows

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Slight
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Duckclub

0 to 27 inches—dark grayish brown loamy fine sand
27 to 32 inches—dark grayish brown fine sandy loam

32 to 41 inches—light brownish gray sandy clay loam
41 to 51 inches—light brownish gray loam
51 to 63 inches—olive brown loamy fine sand

Properties and Qualities of Duckclub

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Frequency of ponding: Rare
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Sandgap soils on sand dunes
- Homefield soils on lake plains

Major Soil Limitations

Wind erosion, wetness, corrosivity, alkalinity, seepage

Use and Management

Livestock Grazing

Thenarrows and Duckclub
- The risk of seepage limits the construction of water impoundments.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- The suitability for seeding is very poor because of the strong alkalinity.

Thenarrows
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.

Duckclub
- As the site deteriorates, black greasewood increases and Lemmon's alkaligrass and inland saltgrass decrease.

326—Thenarrows-Duckclub-Dentdraw complex, 0 to 2 percent slopes

Composition

Thenarrows and similar soils—50 percent

Duckclub and similar soils—20 percent
Dentdraw and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,090 to 4,105 feet
Rangeland ecological site and characteristic vegetation: Thenarrows—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass; Duckclub—(Sodic Lake Terrace) black greasewood, inland saltgrass, Lemmon's alkaligrass; Dentdraw—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Thenarrows

0 to 14 inches—dark gray sandy loam
14 to 22 inches—dark grayish brown loamy sand
22 to 54 inches—light brownish gray sandy loam
54 to 60 inches—grayish brown loamy sand

Properties and Qualities of Thenarrows

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Slight
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Duckclub

0 to 27 inches—dark grayish brown loamy fine sand
27 to 32 inches—dark grayish brown fine sandy loam
32 to 41 inches—light brownish gray sandy clay loam
41 to 51 inches—light brownish gray loam
51 to 63 inches—olive brown loamy fine sand

Properties and Qualities of Duckclub

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Frequency of ponding: Rare
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe
Salinity: Moderate

Alkalinity: Strong
Corrosivity to steel: High

Typical Profile of Dentdraw

0 to 6 inches—very dark grayish brown silt loam
6 to 9 inches—dark olive gray fine sandy loam
9 to 18 inches—dark olive gray silt loam and fine sandy loam
18 to 27 inches—light olive gray clay loam
27 to 42 inches—light olive brown sandy loam
42 to 60 inches—olive brown loamy fine sand

Properties and Qualities of Dentdraw

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present late in winter through summer
Permeability: Moderately slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Slight
Alkalinity: Strong
Corrosivity to steel: High
Potential frost action: High

Contrasting Inclusions

- Sandgap soils on sand dunes
- Homefield soils on lake plains

Major Soil Limitations

Wind erosion, wetness, corrosivity, alkalinity, seepage

Use and Management

Livestock Grazing

Thenarrows, Duckclub, and Dentdraw

- Excess salts and sodium in the soils result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- The risk of seepage limits the construction of water impoundments.
- The suitability for seeding is very poor because of the strong alkalinity.

Thenarrows and Dentdraw

- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.

Duckclub

- As the site deteriorates, black greasewood increases and Lemmon's alkaligrass and inland saltgrass decrease.
- This soil is susceptible to invasion by foxtail barley and kochia.

327—Thenarrows-Duckclub-Sandgap complex, 0 to 4 percent slopes

Composition

Thenarrows and similar soils—35 percent
Duckclub and similar soils—35 percent
Sandgap and similar soils—20 percent
Contrasting inclusions—10 percent

Setting

Landform: Thenarrows and Duckclub—lake plains; Sandgap—sand dunes of lake plains
Position on landform: Thenarrows and Duckclub—plane areas with slopes of 0 to 1 percent; Sandgap—convex areas with slopes of 1 to 4 percent
Parent material: Thenarrows and Duckclub—lacustrine sediment; Sandgap—eolian sand
Elevation: 4,095 to 4,100 feet
Rangeland ecological site and characteristic vegetation: Thenarrows—(Sodic Meadow) alkali sacaton, inland saltgrass, Sandberg bluegrass; Duckclub—(Sodic Lake Terrace) black greasewood, inland saltgrass, Lemmon's alkaligrass; Sandgap—(Sodic Dunes) basin big sagebrush, black greasewood, Indian ricegrass, needleandthread
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Thenarrows

0 to 14 inches—dark gray sandy loam
14 to 22 inches—dark grayish brown loamy sand
22 to 54 inches—light brownish gray sandy loam
54 to 60 inches—grayish brown loamy sand

Properties and Qualities of Thenarrows

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Moderately rapid
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—moderate
Salinity: Moderate
Alkalinity: Strong
Corrosivity to concrete: High
Corrosivity to steel: High
Potential frost action: High

Typical Profile of Duckclub

0 to 27 inches—dark grayish brown loamy fine sand
27 to 32 inches—dark grayish brown fine sandy loam
32 to 41 inches—light brownish gray sandy clay loam
41 to 51 inches—light brownish gray loam
51 to 63 inches—olive brown loamy fine sand

Properties and Qualities of Duckclub

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Frequency of ponding: Rare
Water table: Present in spring
Permeability: Moderately slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High

Typical Profile of Sandgap soil

0 to 2 inches—light brownish gray sand
2 to 6 inches—light brownish gray loamy sand
6 to 19 inches—yellowish brown loamy sand
19 to 30 inches—pale brown loamy sand
30 to 45 inches—light brownish gray loamy sand
45 to 60 inches—very pale brown sandy loam

Properties and Qualities of Sandgap

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe
Corrosivity to steel: High

Contrasting Inclusions

- Homefield soils on lake plains

Major Soil Limitations

Thenarrows, Duckclub, and Sandgap—wind erosion, seepage, corrosivity
Thenarrows and Duckclub—alkalinity, wetness
Sandgap—available water capacity

Use and Management

Livestock Grazing

Thenarrows, Duckclub, and Sandgap

- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.

Thenarrows and Duckclub

- Excess salts and sodium in the soils result in an imbalance of nutrients and create a caustic root environment.

- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- These soils provide important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.

Thenarrows
- As the site deteriorates, inland saltgrass, Baltic rush, and black greasewood increase and alkali sacaton and Sandberg bluegrass decrease.
- The suitability for seeding is very poor because of the strong alkalinity.

Duckclub
- As the site deteriorates, black greasewood increases and Lemmon's alkaligrass and inland saltgrass decrease.
- The suitability for seeding is very poor because of the strong alkalinity.

Sandgap
- The low available water capacity of the surface layer limits seedling survival.
- Severe site deterioration leads to unstable areas of windblown sand.
- As the site deteriorates, black greasewood and inland saltgrass increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- This soil is susceptible to invasion by halogeton, povertyweed, and Russian thistle.
- The suitability for seeding is poor because of the low available water capacity of the surface layer.

328—Ticino-Merlin complex, 2 to 10 percent slopes

Composition

Ticino and similar soils—45 percent
Merlin and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Basalt and welded tuff
Elevation: 4,400 to 5,100 feet
Rangeland ecological site and characteristic vegetation: Ticino—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ticino

0 to 9 inches—dark grayish brown cobbly loam
9 to 26 inches—pale brown sandy clay loam
26 to 29 inches—very pale brown weathered tuff
29 inches—fractured welded tuff

Properties and Qualities of Ticino

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Merlin

0 to 7 inches—brown stony loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Ateron and Teguro soils on hills
- Westbutte soils on north-facing side slopes
- Observation soils on south-facing side slopes
- Rock outcrop

Major Soil Limitations

Ticino and Merlin—depth to bedrock
Merlin—depth to a claypan, shrink-swell potential, available water capacity

Use and Management

Livestock Grazing

Ticino and Merlin
- Depth to bedrock limits the construction of water impoundments.

Ticino
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is good.

Merlin
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

- The suitability for seeding is poor because of the low available water capacity and depth to the claypan.

329—Ticino-Observation complex, 2 to 20 percent slopes

Composition

Ticino and similar soils—60 percent
Observation and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Ticino—residuum; Observation—colluvium and residuum
Geology: Welded tuff, andesite, and basalt
Elevation: 4,200 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Ticino—(JD Shrubby Mountain Clayey 12-16PZ) antelope bitterbrush, mountain big sagebrush, Idaho fescue; Observation—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ticino

0 to 9 inches—dark grayish brown gravelly loam
9 to 26 inches—pale brown sandy clay loam
26 to 29 inches—very pale brown weathered tuff
29 inches—fractured welded tuff

Properties and Qualities of Ticino

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Observation

0 to 4 inches—dark grayish brown stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Ateron, Merlin, and Teguro soils on hills
- Erakatak and Westbutte soils on north- and south-facing side slopes

Major Soil Limitations

Ticino and Observation—depth to bedrock
Observation—shrink-swell potential

Use and Management

Livestock Grazing

Ticino and Observation
- Depth to bedrock limits the construction of water impoundments.

Ticino
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- This soil is susceptible to invasion by western juniper.
- The suitability for seeding is good.

Observation
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- If frequent fires occur, western juniper decreases and ponderosa pine increases.
- The suitability for seeding is fair because of the surface stones.

330—Ticino-Rock outcrop complex, 2 to 20 percent slopes

Composition

Ticino and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Welded tuff
Elevation: 4,700 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Ticino—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 18 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Ticino

0 to 9 inches—dark grayish brown cobbly loam
9 to 26 inches—pale brown sandy clay loam
26 to 29 inches—very pale brown weathered tuff
29 inches—fractured welded tuff

Properties and Qualities of Ticino

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Doyn, Erakatak, Gaib, Merlin, and Teguro soils on hills
- Welch soils in drainageways

Major Soil Limitations

Depth to bedrock

Use and Management

Livestock Grazing

- The areas of Rock outcrop restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is fair because of the areas of Rock outcrop.

331—Toll sand, 2 to 15 percent slopes

Composition

Toll and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Dunes
Slope features: Convex
Parent material: Eolian sand
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Dunes) basin big sagebrush, needleandthread, Indian ricegrass, basin wildrye, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 13 inches—yellowish brown sand
13 to 60 inches—light yellowish brown sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe

Contrasting Inclusions

- Norad, Catlow, Berdugo, and Spangenburg soils on lake terraces

Major Soil Limitations

Wind erosion, permeability

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- This unit is suited to grazing in winter.
- As the site deteriorates, big sagebrush, rabbitbrush, and bottlebrush squirreltail increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- Severe deterioration leads to unstable areas of windblown sand.
- The suitability for seeding is poor because of the sandy surface layer and rapid permeability.

332—Toll-Nevador complex, 0 to 15 percent slopes

Composition

Toll and similar soils—45 percent
Nevador and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans and lake terraces
Position on landform: Toll—dunes with slopes of 2 to 15 percent; Nevador—slopes of 0 to 8 percent
Parent material: Toll—eolian sand; Nevador—alluvium
Geology: Mixed igneous rock
Elevation: 4,500 to 4,800 feet
Rangeland ecological site and characteristic vegetation: Toll—(Dunes) basin big sagebrush, needleandthread, Indian ricegrass, basin wildrye, beardless wildrye; Nevador—(Sandy Loam 8-10PZ) basin big sagebrush, needleandthread, Indian ricegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Toll

0 to 13 inches—yellowish brown sand
13 to 60 inches—light yellowish brown sand

Properties and Qualities of Toll

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Rapid
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe

Typical Profile of Nevador

0 to 3 inches—very pale brown sandy loam
3 to 7 inches—light gray loam
7 to 14 inches—yellowish brown clay loam
14 to 18 inches—brownish yellow clay loam
18 to 32 inches—very pale brown sandy loam
32 to 62 inches—very pale brown gravelly sandy loam

Properties and Qualities of Nevador

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 6 inches
Hazard of erosion: Water—slight; wind—moderate
Corrosivity to steel: High

Contrasting Inclusions

- Spangenburg soils in basins
- Mesman soils on lake terraces
- Outerkirk soils on fan terraces

Major Soil Limitations

Toll and Nevador—wind erosion
Toll—permeability
Nevador—corrosivity

Use and Management

Livestock Grazing

Toll and Nevador
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.

Toll
- The low available water capacity of the surface layer limits seedling survival.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, rabbitbrush, and bottlebrush squirreltail increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- Severe deterioration leads to unstable areas of windblown sand.
- The suitability for seeding is poor because of the sandy surface layer and rapid permeability.

Nevador
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, bottlebrush squirreltail, and Sandberg bluegrass increase and Indian ricegrass and needlegrasses decrease.
- The suitability for seeding is poor because of droughtiness.

333—Torriorthents-Gumble complex, 2 to 35 percent slopes

Composition

Torriorthents and similar soils—50 percent

Gumble and similar soils—40 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Tuffaceous sedimentary rock
Elevation: 3,600 to 4,100 feet
Rangeland ecological site and characteristic vegetation: Torriorthents—(SR Shallow Escarpment 9-12PZ) Wyoming big sagebrush, squaw apple, bluebunch wheatgrass, Thurber needlegrass; Gumble—(SR Shallow 9-12PZ) bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Reference Profile of Torriorthents

0 to 7 inches—light brownish gray extremely gravelly loam
7 inches—diatomaceous earth

Properties and Qualities of Torriorthents

Depth: 4 to 14 inches to bedrock
Drainage class: Well drained
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Gumble

0 to 3 inches—pale brown very gravelly silt loam
3 to 8 inches—pale brown loam
8 to 14 inches—pale brown clay loam
14 to 16 inches—light yellowish brown silty clay loam
16 inches—tuffaceous sedimentary rock

Properties and Qualities of Gumble

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Risley soils on hills
- Rock outcrop

Major Soil Limitations

Torriorthents and Gumble—depth to bedrock, available water capacity
Gumble—shrink-swell potential, corrosivity

Use and Management

Livestock Grazing

Torriorthents and Gumble
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.

Torriorthents
- The low available water capacity of the surface layer limits seedling survival.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

Gumble
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

334—Tumtum cobbly loam, 4 to 15 percent slopes

Composition

Tumtum and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Old lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 5,200 feet
Rangeland ecological site and characteristic vegetation: (Shallow Loam 8-10PZ)
Wyoming big sagebrush, Thurber needlegrass, Indian ricegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—7 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—light brownish gray cobbly loam
2 to 12 inches—yellowish brown clay loam

12 to 25 inches—indurated duripan
25 to 60 inches—light yellowish brown gravelly sandy loam

Soil Properties and Qualities

Depth: 9 to 18 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow over rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Deppy soils on old lake terraces
- Outerkirk soils on alluvial terraces
- Rock outcrop

Major Soil Limitations

Seepage, depth to a hardpan, corrosivity, available water capacity

Use and Management

Livestock Grazing

- The risk of seepage limits the construction of water impoundments.
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- A well-developed erosion pavement can limit the reestablishment of plants.
- The suitability for seeding is poor because of the low available water capacity.

335—Tumtum cobbly loam, high precipitation, 2 to 8 percent slopes

Composition

Tumtum and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Old lake terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,400 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (SR Shallow 9-12PZ)
Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass

Climatic factors:
Mean annual precipitation—10 to 11 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—light brownish gray cobbly loam
2 to 12 inches—yellowish brown clay loam
12 to 25 inches—indurated duripan
25 to 60 inches—light yellowish brown gravelly sandy loam

Soil Properties and Qualities

Depth: 9 to 18 inches to a hardpan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow over rapid
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Poall and Drewsey soils on hills
- Lambranch soils on alluvial fans
- Legler soils along drainageways

Major Soil Limitations

Depth to hardpan, seepage, corrosivity, available water capacity

Use and Management

Livestock Grazing

- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- The risk of seepage limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the low available water capacity.

336—Turpin sandy clay loam, 0 to 1 percent slopes

Composition

Turpin and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane

Parent material: Lacustrine sediment
Elevation: 4,400 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Low Sodic Terrace 6-10PZ) black greasewood, shadscale, spiny hopsage, bottlebrush squirreltail, bud sagebrush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 4 inches—pale brown sandy clay loam
4 to 8 inches—light gray silt loam
8 to 13 inches—pale brown clay loam
13 to 25 inches—light brownish gray clay loam
25 to 38 inches—pale brown clay loam
38 to 48 inches—light gray clay loam
48 to 60 inches—very pale brown clay loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Ponding: Present late in winter and in spring
Water table: Present late in winter and in spring
Permeability: Slow
Available water capacity: About 5 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Strong
Corrosivity to steel: High

Contrasting Inclusions

- Alvodest soils on lake plains
- Norad soils on lake terraces
- Playas

Major Soil Limitations

Wetness, salinity, alkalinity, corrosivity

Use and Management

Livestock Grazing

- This unit provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Crusting of the soil surface reduces infiltration, results in ponding, and restricts seedling emergence and survival.
- This unit is suited to grazing in winter.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, shadscale, black greasewood, and bottlebrush squirreltail increase and bud sagebrush, basin wildrye, and beardless wildrye decrease.

- This soil is susceptible to invasion by halogeton, povertyweed, Russian thistle, and cheatgrass.
- The suitability for seeding is poor because of the strong alkalinity and moderate salinity.

337—Vanwyper-Rock outcrop complex, 45 to 80 percent north slopes

Composition

Vanwyper and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Colluvium and residuum
Geology: Andesite
Elevation: 5,000 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Vanwyper—(North Slopes 6-10PZ) Wyoming big sagebrush, bluebunch wheatgrass, Thurber needlegrass
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 47 degrees F
Frost-free period—50 to 80 days

Typical Profile of Vanwyper

0 to 3 inches—light brownish gray extremely stony silty clay loam
3 to 15 inches—brown cobbly clay
15 to 24 inches—brown very gravelly clay loam
24 inches—fractured andesite

Properties and Qualities of Vanwyper

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—severe; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Actem, Atlow, and Skedaddle soils on hills

Major Soil Limitations

Available water capacity, water erosion, slope, surface stones, depth to bedrock, shrink-swell potential

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope, stones on the surface, and the areas of Rock outcrop restrict the operation of ground seeding equipment.

- Depth to bedrock limits the construction of water impoundments.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, ephedra and big sagebrush increase and bluebunch wheatgrass and Thurber needlegrass decrease.
- The suitability for seeding is very poor because of the surface stones, steepness of slope, low available water capacity, and areas of Rock outcrop.

338—Vergas gravelly loam, 0 to 3 percent slopes

Composition

Vergas and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ)
Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 6 inches—light brownish gray gravelly loam
6 to 14 inches—yellowish brown gravelly sandy clay loam
14 to 20 inches—light yellowish brown gravelly loamy sand
20 to 62 inches—light yellowish brown extremely gravelly coarse sand

Soil Properties and Qualities

Depth: 14 to 35 inches to a hard, brittle layer and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow over very rapid
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: Moderate
Corrosivity to steel: High
Potential frost action: Moderate

Contrasting Inclusions

- Brace soils on plateaus
- Reallis soils on beach terraces
- Wolverine soils on dunes
- Swalesilver soils on lakebeds

Major Soil Limitations

Seepage, corrosivity

Use and Management

Livestock Grazing

- The risk of seepage limits the construction of water impoundments.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

339—Vil silt loam, 2 to 20 percent slopes

Composition

Vil and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 6 inches—brown silt loam
6 to 9 inches—brown loam
9 to 13 inches—pale brown clay loam
13 to 16 inches—light yellowish brown gravelly clay loam
16 to 37 inches—indurated duripan
37 to 60 inches—light yellowish brown very gravelly sandy loam

Soil Properties and Qualities

Depth: 15 to 20 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Gradon soils on fan terraces
- Swalesilver soils in depressions

Major Soil Limitations

Depth to a hardpan, available water capacity

Use and Management

Livestock Grazing

- Depth to the hardpan limits the construction of water impoundments and restricts rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity.

340—Vining loam, 2 to 20 percent slopes

Composition

Vining and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Eolian deposits over residuum
Geology: Tuffaceous sedimentary rock
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile

0 to 2 inches—light brownish gray loam
2 to 13 inches—light yellowish brown sandy loam
13 to 29 inches—pale brown sandy loam
29 inches—tuffaceous sedimentary rock

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Reallis and Poujade soils on lake terraces
- Seharney soils on hills

Major Soil Limitation

Depth to bedrock

Use and Management

Livestock Grazing

- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is good.

341—Vining-Tuffo complex, 5 to 30 percent slopes

Composition

Vining and similar soils—55 percent
Tuffo and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: Vining—north- and east-facing side slopes; Tuffo—south- and west-facing side slopes
Parent material: Vining—eolian deposits over residuum; Tuffo—colluvium and residuum
Geology: Vining—tuffaceous sedimentary rock; Tuffo—ashflow tuff
Elevation: 4,200 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Vining—(Loamy 8-10PZ) Wyoming big sagebrush, Indian ricegrass, Thurber needlegrass, bluebunch wheatgrass; Tuffo—(South Slopes 6-10PZ) ephedra, purple sage, desert needlegrass, Indian ricegrass, bluebunch wheatgrass, Wyoming big sagebrush
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Vining

0 to 2 inches—light brownish gray loamy sand
2 to 13 inches—light yellowish brown sandy loam
13 to 29 inches—pale brown sandy loam
29 inches—tuffaceous sedimentary rock

Properties and Qualities of Vining

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately rapid
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—severe

Typical Profile of Tuffo

0 to 2 inches—pale brown fine sandy loam
2 to 7 inches—light brownish gray fine sandy loam
7 inches—weathered ashflow tuff

Properties and Qualities of Tuffo

Depth: 4 to 14 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Moderately rapid
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—moderate

Contrasting Inclusions

- Enko and Norad soils on lake terraces
- Rock outcrop

Major Soil Limitations

Vining and Tuffo—depth to bedrock, wind erosion
Tuffo—available water capacity

Use and Management

Livestock Grazing

Vining and Tuffo
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- This unit is suited to grazing in winter.

Vining
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush and bottlebrush squirreltail increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is poor because of the low available water capacity of the surface layer.

Tuffo
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, ephedra and purple sage increase and bluebunch wheatgrass, Indian ricegrass, and needlegrasses decrease.
- The suitability for seeding is very poor because of the low available water capacity and depth to bedrock.

342—Vitale very stony loam, 5 to 20 percent slopes

Composition

Vitale and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,200 to 6,100 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 3 inches—brown very stony loam
3 to 12 inches—brown cobbly loam
12 to 21 inches—light yellowish brown very cobbly clay loam
21 to 26 inches—pale brown very cobbly sandy clay loam
26 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Doyn, Erakatak, Merlin, and Royst soils on hills
- Cumulic Haploxerolls in drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Surface stones, depth to bedrock, available water capacity

Use and Management

Livestock grazing
- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

343—Vitale-Merlin complex, 2 to 20 percent slopes

Composition

Vitale and similar soils—50 percent
Merlin and similar soils—35 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,600 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Vitale—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Vitale

0 to 3 inches—brown very cobbly loam
3 to 12 inches—brown cobbly loam
12 to 21 inches—light yellowish brown very cobbly clay loam
21 to 26 inches—pale brown very cobbly sandy clay loam
26 inches—basalt

Properties and Qualities of Vitale

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Merlin

0 to 7 inches—brown very cobbly loam
7 to 12 inches—yellowish brown clay loam
12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Doyn, Erakatak, and Royst soils on hills
- Cumulic Haploxerolls in drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Vitale and Merlin—surface rock fragments, depth to bedrock, available water capacity
Merlin—depth to a claypan, shrink-swell potential

Use and Management

Livestock Grazing

Vitale and Merlin
- In a disturbed or deteriorated condition, these soils are susceptible to invasion by medusahead.
- Depth to bedrock limits the construction of water impoundments.

Vitale
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Merlin

- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The claypan restricts the rooting depth.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity, depth to a claypan, and surface rock fragments.

344—Vitale-Merlin-Doyn complex, 2 to 20 percent slopes

Composition

Vitale and similar soils—35 percent
Merlin and similar soils—30 percent
Doyn and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 3,900 to 5,200 feet
Rangeland ecological site and characteristic vegetation: Vitale—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Merlin—(JD Mountain Claypan 12-16PZ) low sagebrush, Idaho fescue, bluebunch wheatgrass; Doyn—(SR Mountain Very Shallow 12-16PZ) stiff sagebrush, onespike oatgrass, Sandberg bluegrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Vitale

0 to 3 inches—brown gravelly loam
3 to 12 inches—brown cobbly loam
12 to 21 inches—light yellowish brown very cobbly clay loam
21 to 26 inches—pale brown very cobbly sandy clay loam
26 inches—basalt

Properties and Qualities of Vitale

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Merlin

0 to 7 inches—brown very cobbly loam
7 to 12 inches—yellowish brown clay loam

12 to 18 inches—light yellowish brown clay
18 inches—fractured welded tuff

Properties and Qualities of Merlin

Depth: 2 to 14 inches to a claypan and 10 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Typical Profile of Doyn

0 to 2 inches—brown very stony loam
2 to 8 inches—brown cobbly loam
8 inches—basalt

Properties and Qualities of Doyn

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Erakatak and Royst soils on hills
- Rock outcrop

Major Soil Limitations

Vitale, Merlin, and Doyn—available water capacity, depth to bedrock
Merlin—depth to a claypan, shrink-swell potential, surface rock fragments
Doyn—surface stones

Use and Management

Livestock Grazing

Merlin and Doyn
- Bedrock restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.

Vitale
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is fair because of the low available water capacity.

Merlin
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.

- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, depth to the claypan, and surface rock fragments.

Doyn

- The very stony surface restricts the operation of ground seeding equipment.
- This soil commonly supports a sparse stand of perennial grasses; however, forbs become abundant if precipitation is favorable.
- As the site deteriorates, stiff sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and onespike oatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, and surface stones.

345—Vitale-Observation complex, 2 to 20 percent slopes

Composition

Vitale and similar soils—60 percent
Observation and similar soils—30 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills and plateaus
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,900 to 5,400 feet
Rangeland ecological site and characteristic vegetation: Vitale—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass; Observation—(SR Mahogany Mountain Loam 14-18PZ) curl-leaf mountain mahogany, ponderosa pine, antelope bitterbrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Vitale

0 to 3 inches—brown very cobbly loam
3 to 12 inches—brown cobbly loam
12 to 21 inches—light yellowish brown very cobbly clay loam
21 to 26 inches—pale brown very cobbly sandy clay loam
26 inches—basalt

Properties and Qualities of Vitale

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Typical Profile of Observation

0 to 4 inches—dark grayish brown very gravelly loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Westbutte soils on north-facing hillsides
- Gaib, Doyn, and Merlin soils on hills
- Cumulic Haploxerolls in swales and drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Vitale and Observation—depth to bedrock
Vitale—surface rock fragments, available water capacity
Observation—shrink-swell potential

Use and Management

Livestock Grazing

Vitale and Observation
- Depth to bedrock limits the construction of water impoundments.

Vitale
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface rock fragments.

Observation
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- Excessive use of the mountain mahogany within reach of grazing animals reduces its productivity and potential for regeneration.
- The suitability for seeding is good.

346—Vitale-Rock outcrop complex, 20 to 60 percent south slopes

Composition

Vitale and similar soils—65 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Position on landform: South- and west-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,600 to 5,300 feet
Rangeland ecological site and characteristic vegetation: Vitale—(JD Shrubby Mountain South 12-16PZ) antelope bitterbrush, mountain big sagebrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Vitale

0 to 3 inches—brown very stony loam
3 to 12 inches—brown cobbly loam
12 to 21 inches—light yellowish brown very cobbly clay loam
21 to 26 inches—pale brown very cobbly sandy clay loam
26 inches—basalt

Properties and Qualities of Vitale

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Merlin soils on hills
- Erakatak soils on north-facing hillsides
- Anatone soils on ridges

Major Soil Limitations

Vitale—water erosion, slope, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope, stones on the surface, and the areas of Rock outcrop restrict the operation of ground seeding equipment.
- Depth to bedrock and steepness of slope limit the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is very poor because of the steepness of slope, low available water capacity, surface stones, and areas of Rock outcrop.

347—Voltage silt loam, 0 to 2 percent slopes

Composition

Voltage and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Low lake terraces
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 4 inches—light brownish gray silt loam
4 to 23 inches—pale brown and light brownish gray silt loam
23 to 38 inches—light gray loam and fine sandy loam
38 to 64 inches—pale brown fine sandy loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Moderate
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Crowcamp and Opie soils on lake plains

Major Soil Limitations

Salinity, alkalinity, corrosivity

Use and Management

Irrigated Hayland

- Salt-tolerant plants are the most suitable for planting.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Livestock Grazing

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is fair because of the moderate salinity and alkalinity.

348—Voltage-Crowcamp complex, 0 to 2 percent slopes

Composition

Voltage and similar soils—60 percent
Crowcamp and similar soils—25 percent
Contrasting inclusions—15 percent

Setting

Landform: Voltage—low lake terraces; Crowcamp—lake plains
Slope features: Voltage—plane and convex; Crowcamp—plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Voltage—(Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye; Crowcamp—(Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Voltage

0 to 4 inches—light brownish gray silt loam
4 to 23 inches—pale brown and light brownish gray silt loam
23 to 38 inches—light gray loam and fine sandy loam
38 to 64 inches—pale brown fine sandy loam

Properties and Qualities of Voltage

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Moderate
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Crowcamp

0 to 3 inches—gray silt loam
3 to 30 inches—grayish brown and dark gray clay
30 to 53 inches—grayish brown and light olive gray loam
53 to 68 inches—light olive gray very gravelly loam

Properties and Qualities of Crowcamp

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Ponding: Present in spring
Water table: Present in spring
Permeability: Slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight

Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus and Lolak soils on lake plains
- Poujade soils on low lake terraces

Major Soil Limitations

Voltage and Crowcamp—corrosivity
Voltage—salinity, alkalinity
Crowcamp—wetness, shrink-swell potential

Use and Management

Irrigated Hayland

Voltage
- Salt-tolerant plants are the most suitable for planting.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Crowcamp
- Ponding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- Ponding and a seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- Providing adequate drainage is difficult because most areas have poor outlets.

Livestock Grazing

Voltage and Crowcamp
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Voltage
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is fair because of the moderate salinity and alkalinity.

Crowcamp
- This soil provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Silver sagebrush resprouts following fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is good.

349—Voltage-Crowcamp complex, 0 to 2 percent slopes, flooded

Composition

Voltage and similar soils—45 percent
Crowcamp and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Voltage—low lake terraces; Crowcamp—low plains
Slope features: Voltage—concave and convex; Crowcamp—concave
Parent material: Lacustrine sediment
Elevation: 4,090 to 4,106 feet
Rangeland ecological site and characteristic vegetation: Voltage—(Dry Floodplain) basin big sagebrush, basin wildrye, beardless wildrye; Crowcamp—(Ponded Clay) silver sagebrush, Sandberg bluegrass, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Voltage

0 to 4 inches—light brownish gray silty clay loam
4 to 23 inches—pale brown and light brownish gray silt loam
23 to 38 inches—light gray loam and fine sandy loam
38 to 64 inches—pale brown fine sandy loam

Properties and Qualities of Voltage

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Moderate
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Crowcamp

0 to 3 inches—gray silty clay loam
3 to 30 inches—grayish brown and dark gray clay
30 to 53 inches—grayish brown and light olive gray loam
53 to 68 inches—light olive gray very gravelly loam

Properties and Qualities of Crowcamp

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Frequency of ponding: Rare
Water table: Present in spring
Permeability: Slow
Available water capacity: About 9 inches
Hazard of erosion: Water—slight; wind—slight

Shrink-swell potential: High
Corrosivity to concrete: High
Corrosivity to steel: High

Contrasting Inclusions

- Ausmus, Homefield, and Thenarrows soils on lake plains
- Poujade soils on low lake terraces

Major Soil Limitations

Voltage and Crowcamp—corrosivity
Voltage—salinity, alkalinity
Crowcamp—wetness, shrink-swell potential

Use and Management

Livestock Grazing

Voltage and Crowcamp
- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.

Voltage
- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is fair because of the moderate salinity and alkalinity.

Crowcamp
- This soil provides important food and cover for wetland wildlife.
- Deferred grazing improves habitat for migrating waterfowl.
- Grazing when the soil is wet results in compaction of the surface layer. A compacted surface layer may result in excessive runoff and restricted plant growth.
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- Silver sagebrush resprouts following fire.
- As the site deteriorates, silver sagebrush increases and Sandberg bluegrass decreases.
- This soil is susceptible to invasion by povertyweed.
- The suitability for seeding is good.

350—Voltage-Widowspring complex, 0 to 2 percent slopes

Composition

Voltage and similar soils—65 percent
Widowspring and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Voltage—low lake terraces; Widowspring—lake plains
Slope features: Voltage—plane and convex; Widowspring—plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: Voltage—(Dry Floodplain)

basin big sagebrush, basin wildrye, beardless wildrye; Widowspring—(Loamy Bottom) basin big sagebrush, basin wildrye

Climatic factors:

Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Voltage

0 to 4 inches—light brownish gray silt loam
4 to 23 inches—pale brown and light brownish gray silt loam
23 to 38 inches—light gray loam and fine sandy loam
38 to 64 inches—pale brown fine sandy loam

Properties and Qualities of Voltage

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Salinity: Moderate
Alkalinity: Moderate
Corrosivity to concrete: High
Corrosivity to steel: High

Typical Profile of Widowspring

0 to 7 inches—dark grayish brown silt loam
7 to 22 inches—grayish brown silt loam
22 to 43 inches—brown silt loam
43 to 63 inches—yellowish brown loam

Properties and Qualities of Widowspring

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Water table: Present in winter and spring
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Contrasting Inclusions

- Ausmus, Crowcamp, and Opie soils on lake plains

Major Soil Limitations

Voltage—salinity, alkalinity, corrosivity
Widowspring—frost action, wetness

Use and Management

Livestock Grazing

Voltage

- Excess salts and sodium in the soil result in an imbalance of nutrients and create a caustic root environment.
- Dispersion and crusting of the soil surface reduce the water intake rate, restricting seedling emergence and survival.

- Because of the high corrosivity to uncoated steel and concrete, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and rabbitbrush increase and basin wildrye and beardless wildrye decrease.
- The suitability for seeding is fair because of the moderate salinity and alkalinity.

Widowspring
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is good.

Irrigated Hayland

Voltage
- Salt-tolerant plants are the most suitable for planting.
- Proper irrigation water management and adequate drainage are needed to leach the salts below the rooting zone.

Widowspring
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost heave.

351—Wagontire gravelly clay loam, 2 to 20 percent slopes

Composition

Wagontire and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Alluvial fans
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: (Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 15 inches—brown gravelly clay loam
15 to 40 inches—indurated duripan
40 to 60 inches—light yellowish brown very gravelly sandy loam

Soil Properties and Qualities

Depth: 14 to 20 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Vil soils on alluvial fans
- Actem soils on plateaus
- Pernty and Reluctan soils on hills

Major Soil Limitations

Depth to a hardpan, corrosivity, available water capacity

Use and Management

- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.
- The suitability for seeding is poor because of the low available water capacity.

352—Wagontire-Vil complex, 2 to 20 percent slopes

Composition

Wagontire and similar soils—55 percent
Vil and similar soils—30 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Slope features: Concave and convex
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 5,000 feet
Rangeland ecological site and characteristic vegetation: Wagontire—(Claypan 10-12PZ) low sagebrush, bluebunch wheatgrass, Sandberg bluegrass; Vil—(Loamy 10-12PZ) Wyoming big sagebrush, Thurber needlegrass, bluebunch wheatgrass, Sandberg bluegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Wagontire

0 to 15 inches—brown gravelly clay loam
15 to 40 inches—indurated duripan
40 to 60 inches—light yellowish brown very gravelly sandy loam

Properties and Qualities of Wagontire

Depth: 14 to 20 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained

Permeability: Slow
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Typical Profile of Vil

0 to 6 inches—brown silt loam
6 to 9 inches—brown loam
9 to 13 inches—pale brown clay loam
13 to 16 inches—light yellowish brown gravelly clay loam
16 to 37 inches—indurated duripan
37 to 60 inches—light yellowish brown very gravelly sandy loam

Properties and Qualities of Vil

Depth: 15 to 20 inches to a duripan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Actem soils on plateaus
- Pernty and Reluctan soils on hills

Major Soil Limitations

Wagontire and Vil—depth to a hardpan, available water capacity
Wagontire—corrosivity

Use and Management

Livestock Grazing

Wagontire and Vil
- The cemented hardpan restricts the rooting depth and limits the construction of water impoundments.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- The upper part of the soils is saturated following snowmelt.
- Allow the soils to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- The suitability for seeding is poor because of the low available water capacity.

Wagontire
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and bluebunch wheatgrass decreases.

Vil
- This soil is susceptible to invasion by cheatgrass.
- As the site deteriorates, bottlebrush squirreltail, Sandberg bluegrass, rabbitbrush, and big sagebrush increase and Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass decrease.

353—Waspo-Poall complex, 2 to 8 percent slopes

Composition

Waspo and similar soils—45 percent
Poall and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum
Geology: Waspo—siltstone; Poall—tuffaceous sedimentary rock and diatomaceous earth
Elevation: 3,400 to 4,000 feet
Rangeland ecological site and characteristic vegetation: Waspo—(SR Adobeland 9-12PZ) basin wildrye, bluebunch wheatgrass; Poall—(SR Clayey 9-12PZ) bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Waspo

0 to 25 inches—light olive brown clay
25 inches—moderately cemented siltstone

Properties and Qualities of Waspo

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Very slow
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Typical Profile of Poall

0 to 8 inches—light brownish gray silt loam
8 to 17 inches—yellowish brown clay
17 to 33 inches—pale brown clay loam
33 to 45 inches—pale brown clay loam
45 to 65 inches—light yellowish brown gravelly clay loam

Properties and Qualities of Poall

Depth: 3 to 10 inches to a claypan and more than 60 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High
Corrosivity to steel: High

Contrasting Inclusions

- Legler soils on stream terraces
- Atlow and Gumble soils and Torriorthents on hills
- Bucklake soils on north-facing hillsides
- Rock outcrop

Major Soil Limitations

Waspo and Poall—shrink-swell potential, corrosivity
Waspo—depth to bedrock
Poall—depth to a claypan

Use and Management

Livestock Grazing

Waspo and Poall
- The heavy-textured soils expand when wet and contract when dry, which may damage structures and fences.
- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

Waspo
- Depth to bedrock limits the construction of water impoundments.
- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, big sagebrush increases and basin wildrye and bluebunch wheatgrass decrease.
- The suitability for seeding is fair because of the clayey surface layer.

Poall
- The claypan restricts the rooting depth.
- The upper part of the soil is saturated following snowmelt.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass decreases.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- The suitability for seeding is poor because of the depth to the claypan.

354—Water

This map unit consists of lakes, rivers, and reservoirs. Depressions or linear areas that contained water are shown on the publication maps as Water. The extent or presence of these areas can fluctuate greatly from year to year. During periods of high precipitation or runoff from snowmelt, the areas of Water increase. During periods of drought, the areas of Water decrease. In any given year, the areas of Water shown on the maps may appear as soil. Conversely, areas of soil or Playas adjacent to areas of Water may be under water or appear as areas of Water.

355—Welch silt loam, cold, 0 to 5 percent slopes

Composition

Welch and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountain valleys
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 5,500 to 9,000 feet
Rangeland ecological site and characteristic vegetation: (Subalpine Meadow) tufted hairgrass, sedge, willow
Climatic factors:
Mean annual precipitation—12 to 35 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—30 to 60 days

Typical Profile

0 to 9 inches—grayish brown silt loam
9 to 34 inches—gray and dark gray silt loam
34 to 60 inches—light brownish gray loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring and early in summer
Water table: Present in winter, spring, and summer
Permeability: Moderately slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Contrasting Inclusions

- Leemorris and Baconcamp soils on mountainsides
- Hackwood soils in swales of mountainsides and footslopes

Major Soil Limitations

Wetness, frost action

Use and Management

Livestock Grazing

- This unit provides important food and cover for wildlife.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- As the site deteriorates, sedges, rushes, cinquefoil, bluegrasses, and reedgrass increase and tufted hairgrass decreases.
- The suitability for seeding is good.

356—Welch silt loam, cool, 0 to 5 percent slopes

Composition

Welch and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountain valleys
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 5,500 to 6,400 feet
Rangeland ecological site and characteristic vegetation: (Wet Meadow) tufted hairgrass
Climatic factors:
Mean annual precipitation—12 to 18 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 9 inches—grayish brown silt loam
9 to 34 inches—gray and dark gray silt loam
34 to 60 inches—light brownish gray loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Ponding: Present in spring
Water table: Present in winter, spring, and summer
Permeability: Moderately slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Contrasting Inclusions

- Leemorris and Baconcamp soils on mountainsides
- Hackwood soils in swales of mountainsides and footslopes

Major Soil Limitations

Wetness, frost action

Use and Management

Livestock Grazing

- This unit provides important food and cover for wildlife.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soil is wet or saturated damages plants and causes soil compaction and displacement.
- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.

- As the site deteriorates, sedges, rushes, cinquefoil, bluegrasses, and reedgrass increase and tufted hairgrass decreases.
- The suitability for seeding is good.

357—Welch-Roschene-Cumulic Haploxerolls complex, 0 to 3 percent slopes

Composition

Welch and similar soils—40 percent
Roschene and similar soils—25 percent
Cumulic Haploxerolls and similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Stream terraces
Position on landform: Welch—depressions; Roschene—plane areas; Cumulic Haploxerolls—areas adjacent to streams
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,500 to 5,500 feet
Rangeland ecological site and characteristic vegetation: Welch—(Mountain Meadow) tufted hairgrass; Roschene—(Mountain Loamy Bottom) willow, basin wildrye; Cumulic Haploxerolls—(Willow-Riparian) willow, sedge, tufted hairgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Welch

0 to 5 inches—grayish brown loam
5 to 34 inches—gray and dark gray silt loam
34 to 60 inches—light brownish gray loam

Properties and Qualities of Welch

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Water table: Present late in winter, in spring, and early in summer
Flooding: Present in spring
Permeability: Moderately slow
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Typical Profile of Roschene

0 to 18 inches—grayish brown loam
18 to 36 inches—grayish brown clay loam
36 to 62 inches—pale brown clay loam

Properties and Qualities of Roschene

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present late in winter, in spring, and early in summer
Flooding: Present in spring

Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Reference Profile of Cumulic Haploxerolls

0 to 5 inches—dark grayish brown loam
5 to 25 inches—dark gray loam
25 to 54 inches—light brownish gray loam
54 to 60 inches—light brownish gray very gravelly sandy loam

Properties and Qualities of Cumulic Haploxerolls

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Water table: Present in spring
Flooding: Present in spring
Permeability: Moderate
Available water capacity: Variable
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Minam soils along higher gradient stream terraces
- Erakatak soils on hills
- Brunzell soils on stream terraces

Major Soil Limitations

Welch, Roschene, and Cumulic Haploxerolls—wetness
Welch—frost action
Roschene—corrosivity

Use and Management

Livestock Grazing

Welch, Roschene, and Cumulic Haploxerolls

- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- The suitability for seeding is good.

Welch

- As the site deteriorates, sedges, rushes, cinquefoil, and bluegrasses increase and tufted hairgrass decreases.
- Sedges are most abundant in wet areas, and hairgrass is most abundant in drier areas.

Roschene

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

- As the site deteriorates, big sagebrush and bluegrasses increase and basin wildrye and willows decrease.
- Willows decrease as the depth to the water table increases.
- This soil is susceptible to invasion by western juniper.

Cumulic Haploxerolls
- As the site deteriorates, big sagebrush, bluegrasses, rushes, and sedges increase and willows and tufted hairgrass decrease.

Irrigated Hayland

Welch, Roschene, and Cumulic Haploxerolls
- This unit is well suited to use as irrigated hayland.

Welch
- A seasonal high water table restricts haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- This unit provides important food and cover for wetland wildlife.
- The seasonal high water table limits the choice of forage plants to varieties adapted to wet conditions.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost action.

358—Wenas-Loupence-Cumulic Haploxerolls complex, 0 to 3 percent slopes

Composition

Wenas and similar soils—50 percent
Loupence and similar soils—25 percent
Cumulic Haploxerolls and similar soils—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Stream terraces
Position on landform: Wenas—depressions; Loupence—plane areas; Cumulic Haploxerolls—areas adjacent to streams
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 3,500 to 3,900 feet
Rangeland ecological site and characteristic vegetation: Wenas—(Meadow) tufted hairgrass, sedge; Loupence—(Loamy Bottom) basin wildrye; Cumulic Haploxerolls—(Willow-Riparian) willow, sedge, tufted hairgrass
Climatic factors:
Mean annual precipitation—9 to 12 inches
Mean annual air temperature—45 to 49 degrees F
Frost-free period—80 to 100 days

Typical Profile of Wenas

0 to 10 inches—dark grayish brown clay loam
10 to 21 inches—grayish brown fine sandy loam
21 to 53 inches—grayish brown loam
53 to 63 inches—grayish brown gravelly loam
63 to 67 inches—grayish brown very gravelly loamy sand

Properties and Qualities of Wenas

Depth: More than 60 inches to bedrock
Drainage class: Poorly drained
Water table: Present late in winter, in spring, and early in summer
Flooding: Present in spring
Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Typical Profile of Loupence

0 to 49 inches—grayish brown silt loam
49 to 60 inches—brown sandy loam

Properties and Qualities of Loupence

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Water table: Present late in winter, in spring, and early in summer
Flooding: Present in spring
Permeability: Moderate
Available water capacity: About 11 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High
Potential frost action: High

Reference Profile of Cumulic Haploxerolls

0 to 5 inches—dark grayish brown loam
5 to 25 inches—dark gray loam
25 to 54 inches—light brownish gray loam
54 to 60 inches—light brownish gray very gravelly sandy loam

Properties and Qualities of Cumulic Haploxerolls

Depth: More than 60 inches to bedrock
Drainage class: Somewhat poorly drained
Water table: Present in spring
Flooding: Present in spring
Permeability: Moderate
Available water capacity: Variable
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Final soils on stream terraces
- Lambranch soils on alluvial fans

Major Soil Limitations

Wenas, Loupence, and Cumulic Haploxerolls—wetness
Wenas and Loupence—frost action
Loupence—corrosivity

Use and Management

Irrigated Hayland

Wenas, Loupence, and Cumulic Haploxerolls
- This unit is well suited to use as irrigated hayland.

- Flooding and a seasonal high water table restrict haying and grazing. Wetness increases the risk of winterkill of plants.
- The seasonal high water table provides supplemental water for adapted plants.
- This unit provides important food and cover for wetland wildlife.
- Flooding and the seasonal high water table limit the choice of forage plants to varieties adapted to wet conditions.
- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost action.

Livestock Grazing

Wenas, Loupence, and Cumulic Haploxerolls

- Grazing should be managed to maintain or increase the abundance of plants that help to stabilize streambanks and keep water temperatures moderate.
- Grazing early in the season allows for sufficient regrowth of plants before runoff in spring.
- Allow the soils to drain adequately before grazing to minimize compaction of the soils and damage to plants.
- Saturated soil conditions make fences unstable and limit their placement.
- Trampling by livestock when the soils are wet or saturated damages plants and causes soil compaction and displacement.
- As streambanks become unstable, channels deepen and widen and the subsurface waterflow is reduced, resulting in a drier site with decreased production and increased density of upland shrubs.
- The suitability for seeding is good.

Wenas

- As the site deteriorates, sedges, rushes, cinquefoil, and bluegrasses increase and tufted hairgrass decreases.

Loupence

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.
- As the site deteriorates, big sagebrush and bluegrasses increase and basin wildrye and willows decrease.

Cumulic Haploxerolls

- As the site deteriorates, big sagebrush, bluegrasses, rushes, and sedges increase and willows and tufted hairgrass decrease.

359—Westbutte very stony loam, 20 to 50 percent north slopes

Composition

Westbutte and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Slope features: Concave and convex
Parent material: Colluvium and residuum
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 5,200 to 6,400 feet
Rangeland ecological site and characteristic vegetation: (Gravelly North Slopes 12-16PZ) threetip sagebrush, Idaho fescue

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Erakatak, Ninemile, and Pearlwise soils on mountains
- Rock outcrop

Major Soil Limitations

Water erosion, available water capacity, slope, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and skyline bluegrass and Idaho fescue decrease.
- Threetip sagebrush resprouts after burning.
- The suitability for seeding is very poor because of the steepness of slope and surface stones.

360—Westbutte extremely stony loam, 5 to 25 percent slopes

Composition

Westbutte and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills
Slope features: Concave and convex
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 5,200 to 6,200 feet
Rangeland ecological site and characteristic vegetation: (Loamy 12-16PZ) mountain big sagebrush, Idaho fescue, Thurber needlegrass

Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Soil Properties and Qualities

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—slight; wind—slight

Contrasting Inclusions

- Ninemile soils on hills
- Carvix soils on stream terraces
- Rock outcrop and Rubble land

Major Soil Limitations

Available water capacity, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- The extremely stony surface layer prohibits the operation of ground seeding equipment.
- The extremely stony soil surface limits livestock movement and the distribution of grazing.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the surface stones.

361—Westbutte-Bocker complex, 20 to 60 percent slopes

Composition

Westbutte and similar soils—45 percent
Bocker and similar soils—40 percent
Contrasting inclusions—15 percent

Setting

Landform: Hills and plateaus
Position on landform: Westbutte—north- and east-facing side slopes and concave areas; Bocker—convex areas
Parent material: Colluvium and residuum
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,600 to 6,400 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(North Slopes

12-16PZ) mountain big sagebrush, Idaho fescue; Bocker—(Shallow North 12-16PZ) low sagebrush, Idaho fescue

Climatic factors:

Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Bocker

0 to 3 inches—pale brown extremely stony loam
3 to 7 inches—brown very stony loam
7 inches—basalt

Properties and Qualities of Bocker

Depth: 4 to 10 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 1 inch
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Pearlwise soils on hills
- Carvix soils on stream terraces
- Rock outcrop and Rubble land

Major Soil Limitations

Westbutte and Bocker—available water capacity, water erosion, slope, surface stones, depth to bedrock

Use and Management

Livestock Grazing

Westbutte and Bocker

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- The extremely stony surface layer prohibits the operation of ground seeding equipment and limits livestock movement and the distribution of grazing.
- Depth to bedrock limits the construction of water impoundments.

Westbutte

- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the surface stones and steepness of slope.

Bocker
- Bedrock restricts the rooting depth.
- Special design is needed for fences because the very shallow soil depth limits the placement of fence posts.
- The upper part of the soil is saturated following snowmelt.
- This soil is susceptible to invasion by cheatgrass and medusahead.
- As the site deteriorates, low sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is very poor because of the low available water capacity, depth to bedrock, surface stones, and steepness of slope.

362—Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes

Composition

Westbutte and similar soils—40 percent
Lambring and similar soils—25 percent
Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Westbutte—residuum and colluvium; Lambring—colluvium
Geology: Basalt and welded tuff
Elevation: 5,200 to 6,500 feet
Rangeland ecological site and characteristic vegetation: Westbutte and Lambring—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown extremely stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very cobbly loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Ninemile and Pearlwise soils on mountains

Major Soil Limitations

Westbutte and Lambring—water erosion, slope
Westbutte—available water capacity, surface stones, depth to bedrock

Use and Management

Livestock Grazing

Westbutte and Lambring
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Steepness of slope restricts the operation of ground seeding equipment.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- These soils are susceptible to invasion by cheatgrass.

Westbutte
- The extremely stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- The suitability for seeding is very poor because of the steepness of slope and surface stones.

Lambring
- The suitability for seeding is very poor because of the steepness of slope.

363—Westbutte-Rock outcrop complex, 20 to 60 percent north slopes

Composition

Westbutte and similar soils—75 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Position on landform: North- and east-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,100 to 6,000 feet
Rangeland ecological site and characteristic vegetation: (SR Mountain North 12-16PZ) mountain big sagebrush, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches

Mean annual air temperature—40 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Doyn, Erakatak, Merlin, Observation, and Royst soils on hills
- Roschene soils on stream terraces

Major Soil Limitations

Available water capacity, water erosion, slope, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is very poor because of the steepness of slope.

364—Westbutte-Rock outcrop complex, 20 to 60 percent south slopes

Composition

Westbutte and similar soils—65 percent
Rock outcrop similar soils—20 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: South- and west-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt, andesite, rhyolite, and welded tuff
Elevation: 4,200 to 5,100 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(SR Mountain South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches

Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Lambring soils on north-facing mountainsides
- Carryback and Pearlwise soils on mountainsides

Major Soil Limitations

Available water capacity, water erosion, slope, surface stones, depth to bedrock

Use and Management

Livestock Grazing

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is very poor because of the steepness of slope.

365—Westbutte-Lambring-Rock outcrop association, 20 to 60 percent slopes

Composition

Westbutte and similar soils—40 percent
Lambring and similar soils—35 percent
Rock outcrop—15 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains
Position on landform: Westbutte—south- and west-facing side slopes; Lambring—north- and east-facing side slopes
Parent material: Westbutte—colluvium and residuum; Lambring—colluvium
Geology: Basalt and welded tuff
Elevation: 4,100 to 5,600 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(SR Mountain

South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Idaho fescue; Lambring—(SR Mountain North 12-16PZ) mountain big sagebrush, Idaho fescue

Climatic factors:

Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very cobbly loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Merlin, Observation, and Ticino soils on hills

Major Soil Limitations

Westbutte and Lambring—water erosion, slope, surface rock fragments
Westbutte—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Westbutte and Lambring

- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and the surface rock fragments restrict the operation of ground seeding equipment.
- The suitability for seeding is very poor because of the steepness of slope.

Westbutte

- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

Lambring
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

366—Westbutte-Lambring-Rock outcrop association, cool, 20 to 60 percent slopes

Composition

Westbutte and similar soils—40 percent
Lambring and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Westbutte—south- and west-facing side slopes; Lambring—north- and east-facing side slopes
Parent material: Westbutte—residuum and colluvium; Lambring—colluvium
Geology: Basalt and welded tuff
Elevation: 4,700 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(SR Mountain South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Idaho fescue; Lambring—(SR Mahogany Rockland 12+PZ) curl-leaf mountain mahogany, western juniper, antelope bitterbrush, bluebunch wheatgrass, Idaho fescue
Climatic factors:
Mean annual precipitation—14 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very cobbly loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Nuss, Observation, and Ticino soils on hillsides

Major Soil Limitations

Westbutte and Lambring—water erosion, slope, surface rock fragments
Westbutte—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Westbutte and Lambring
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and rock fragments on the surface restrict the operation of ground seeding equipment.
- The suitability for seeding is very poor because of the steepness of slope.

Westbutte
- Depth to bedrock and steepness of slope limit the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.

Lambring
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.

367—Westbutte-Lambring-Rock outcrop association, moist, 20 to 60 percent slopes

Composition

Westbutte and similar soils—40 percent
Lambring and similar soils—30 percent
Rock outcrop—15 percent
Contrasting inclusions—15 percent

Setting

Landform: Mountains
Position on landform: Westbutte—south- and west-facing side slopes; Lambring—north- and east-facing side slopes
Parent material: Westbutte—colluvium and residuum; Lambring—colluvium
Geology: Basalt and welded tuff
Elevation: 4,300 to 5,100 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(SR Mountain South 12-16PZ) mountain big sagebrush, bluebunch wheatgrass, Idaho fescue; Lambring—(JD Shrubby Mountain North 12-16PZ) antelope bitterbrush, mountain big sagebrush, whortleleaf snowberry, Idaho fescue
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Lambring

0 to 7 inches—dark grayish brown very stony loam
7 to 21 inches—brown gravelly loam
21 to 60 inches—brown very cobbly loam

Properties and Qualities of Lambring

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 6 inches
Hazard of erosion: Water—moderate; wind—slight

Contrasting Inclusions

- Nuss and Ticino soils on hillsides
- Observation soils on canyonsides, hillsides, and escarpments

Major Soil Limitations

Westbutte and Lambring—water erosion, slope, surface stones
Westbutte—depth to bedrock, available water capacity

Use and Management

Livestock Grazing

Westbutte and Lambring
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Steepness of slope and stones on the surface restrict the operation of ground seeding equipment.

Westbutte
- Depth to bedrock limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the low available water capacity, surface stones, and steepness of slope.

Lambring
- As the site deteriorates, big sagebrush and Sandberg bluegrass increase and Idaho fescue, bluebunch wheatgrass, and antelope bitterbrush decrease.
- The suitability for seeding is poor because of the surface stones and steepness of slope.

368—Westbutte-Observation association, 5 to 40 percent slopes

Composition

Westbutte and similar soils—50 percent
Observation and similar soils—40 percent
Contrasting inclusions—10 percent

Setting

Landform: Mountains and hills
Position on landform: Westbutte—north- and east-facing slopes of 20 to 40 percent; Observation—side slopes of 5 to 20 percent
Parent material: Residuum and colluvium
Geology: Basalt, andesite, and welded tuff
Elevation: 4,200 to 6,000 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(SR Mountain North 12-16PZ) mountain big sagebrush, Idaho fescue; Observation—(SR Mountain Clayey 12-16PZ) mountain big sagebrush, Idaho fescue, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches
Mean annual air temperature—40 to 43 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Observation

0 to 4 inches—dark grayish brown very stony loam
4 to 8 inches—brown cobbly loam
8 to 18 inches—dark yellowish brown clay loam
18 to 23 inches—dark yellowish brown clay
23 inches—fractured basalt

Properties and Qualities of Observation

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Slow
Available water capacity: About 3 inches
Hazard of erosion: Water—slight; wind—slight
Shrink-swell potential: High

Contrasting Inclusions

- Merlin soils on hills

- Pearlwise soils on north- and east-facing mountainsides
- Minam soils in drainageways
- Rock outcrop and Rubble land

Major Soil Limitations

Westbutte and Observation—surface stones, depth to bedrock
Westbutte—available water capacity, water erosion
Observation—shrink-swell potential

Use and Management

Livestock Grazing

Westbutte and Observation
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- The very stony surface layer restricts the operation of ground seeding equipment.
- Depth to bedrock limits the construction of water impoundments.

Westbutte
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Observation
- The heavy-textured soil expands when wet and contracts when dry, which may damage structures and fences.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- In a disturbed or deteriorated condition, this soil is susceptible to invasion by medusahead.
- The suitability for seeding is poor because of the surface stones.

369—Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes

Composition

Westbutte and similar soils—35 percent
Rock outcrop—30 percent
Pernty and similar soils—25 percent
Contrasting inclusions—10 percent

Setting

Landform: Hills
Position on landform: Westbutte—north- and east-facing side slopes; Pernty—south- and west-facing side slopes
Parent material: Residuum and colluvium
Geology: Basalt and rhyolite
Elevation: 4,600 to 5,400 feet
Rangeland ecological site and characteristic vegetation: Westbutte—(North Slopes 12-16PZ) mountain big sagebrush, Idaho fescue; Pernty—(South Slopes 12-16PZ) mountain big sagebrush, antelope bitterbrush, bluebunch wheatgrass
Climatic factors:
Mean annual precipitation—12 to 16 inches

Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile of Westbutte

0 to 12 inches—dark grayish brown very stony loam
12 to 24 inches—brown very cobbly loam
24 inches—basalt

Properties and Qualities of Westbutte

Depth: 20 to 40 inches to bedrock
Drainage class: Well drained
Permeability: Moderate
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—slight

Typical Profile of Pernty

0 to 3 inches—grayish brown gravelly sandy loam
3 to 8 inches—grayish brown cobbly loam
8 to 15 inches—brown very cobbly loam
15 inches—rhyolite

Properties and Qualities of Pernty

Depth: 14 to 20 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 2 inches
Hazard of erosion: Water—moderate; wind—moderate

Contrasting Inclusions

- Ninemile and Pearlwise soils on hills
- Carvix soils on stream terraces
- Bocker soils on north-facing hillsides
- Rubble land

Major Soil Limitations

Westbutte and Pernty—available water capacity, water erosion, depth to bedrock
Westbutte—surface stones

Use and Management

Livestock Grazing

Westbutte and Pernty
- Construction of waterbars prevents gullying on roads, trails, and pipelines.
- Maintaining adequate plant cover minimizes the risk of water erosion.
- Depth to bedrock limits the construction of water impoundments.

Westbutte
- The very stony surface layer restricts the operation of ground seeding equipment.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and Idaho fescue and bluebunch wheatgrass decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity and surface stones.

Pernty

- Bedrock restricts the rooting depth.
- Special design is needed for fences because the shallow soil depth limits the placement of fence posts.
- As the site deteriorates, big sagebrush, Sandberg bluegrass, and bottlebrush squirreltail increase and bluebunch wheatgrass and needlegrasses decrease.
- This soil is susceptible to invasion by cheatgrass.
- The suitability for seeding is poor because of the low available water capacity.

370—Widowspring silt loam, 0 to 2 percent slopes

Composition

Widowspring and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake plains
Slope features: Plane
Parent material: Lacustrine sediment
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Loamy Bottom) basin big sagebrush, basin wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—dark grayish brown silt loam
7 to 22 inches—grayish brown silt loam
22 to 43 inches—brown silt loam
43 to 63 inches—yellowish brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Moderately well drained
Frequency of ponding: Rare
Water table: Present in winter and spring
Permeability: Moderately slow
Available water capacity: About 12 inches
Hazard of erosion: Water—slight; wind—slight
Potential frost action: High

Contrasting Inclusions

- Crowcamp, Degarmo, Fury, Opie, and Skidoosprings soils on lake plains

Major Soil Limitations

Frost action, wetness

Use and Management

Livestock Grazing

- Allow the soil to drain adequately before grazing to minimize compaction of the soil and damage to plants.

- As the site deteriorates, big sagebrush increases and basin wildrye decreases.
- The suitability for seeding is good.

Irrigated Hayland

- There is a risk of winterkill of plants and damage to seedlings because of the high hazard of frost action.

371—Windybutte silt loam, 2 to 5 percent slopes

Composition

Windybutte and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Lake terraces
Slope features: Plane
Parent material: Alluvium
Geology: Mixed igneous rock
Elevation: 4,000 to 4,200 feet
Rangeland ecological site and characteristic vegetation: (Silt Loam Terrace 10-12PZ) basin big sagebrush, bluebunch wheatgrass, basin wildrye, Thurber needlegrass
Climatic factors:
Mean annual precipitation—10 to 12 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 7 inches—grayish brown silt loam
7 to 13 inches—brown silty clay loam
13 to 17 inches—pale brown loam
17 to 60 inches—pale brown and very pale brown loam

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Well drained
Permeability: Moderately slow
Available water capacity: About 10 inches
Hazard of erosion: Water—slight; wind—slight
Corrosivity to steel: High

Contrasting Inclusions

- Kegler and Lawen soils on lake terraces
- Carvix soils on stream terraces

Major Soil Limitation

Corrosivity

Use and Management

Irrigated Hayland

- This unit is well suited to use as irrigated hayland.

Livestock Grazing

- Because of the high corrosivity to uncoated steel, noncorrosive material or treatments should be used for structures.

- As the site deteriorates, big sagebrush increases and bluebunch wheatgrass and basin wildrye decrease.
- The suitability for seeding is good.

372—Wolverine fine sand, 2 to 15 percent slopes

Composition

Wolverine and similar soils—85 percent
Contrasting inclusions—15 percent

Setting

Landform: Dunes
Slope features: Concave and convex
Parent material: Eolian sand
Geology: Mixed igneous rock
Elevation: 4,000 to 4,500 feet
Rangeland ecological site and characteristic vegetation: (Dunes) basin big sagebrush, needleandthread, Indian ricegrass, basin wildrye, beardless wildrye
Climatic factors:
Mean annual precipitation—8 to 10 inches
Mean annual air temperature—43 to 45 degrees F
Frost-free period—50 to 80 days

Typical Profile

0 to 6 inches—brown fine sand
6 to 37 inches—brown sand
37 to 70 inches—light brownish gray sand

Soil Properties and Qualities

Depth: More than 60 inches to bedrock
Drainage class: Somewhat excessively drained
Permeability: Very rapid
Available water capacity: About 4 inches
Hazard of erosion: Water—slight; wind—severe

Contrasting Inclusions

- Poujade and Reallis soils on lake terraces

Major Soil Limitations

Available water capacity, wind erosion, seepage

Use and Management

Livestock Grazing

- The low available water capacity of the surface layer limits seedling survival.
- Maintaining adequate plant cover minimizes the risk of wind erosion.
- The risk of seepage limits the construction of water impoundments.
- As the site deteriorates, big sagebrush, rabbitbrush, and bottlebrush squirreltail increase and basin wildrye, Indian ricegrass, and needlegrasses decrease.
- Severe deterioration leads to unstable areas of windblown sand.
- The suitability for seeding is poor because of the low available water capacity of the sandy surface layer.

373—Denied Access

This map unit consists of areas where the landowner denied access to the land for the purpose of soil mapping.

Use and Management of the Soils

This soil survey is an inventory and evaluation of the soils in the survey area. It can be used to adjust land uses to the limitations and potentials of natural resources and the environment. Also, it can help to prevent soil-related failures in land uses.

In preparing a soil survey, soil scientists, conservationists, engineers, and others collect extensive field data about the nature and behavioral characteristics of the soils. They collect data on erosion, droughtiness, flooding, and other factors that affect various soil uses and management. Field experience and collected data on soil properties and performance are used as a basis in predicting soil behavior.

Information in this section can be used to plan the use and management of soils for crops and pasture; as rangeland and forestland; and as sites for buildings, sanitary facilities, highways and other transportation systems, and parks and other recreational facilities. It can be used to identify the potentials and limitations of each soil for specific land uses and to help prevent construction failures caused by unfavorable soil properties.

Planners and others using soil survey information can evaluate the effect of specific land uses on productivity and on the environment in all or part of the survey area. The survey can help planners to maintain or create a land use pattern in harmony with the natural soil.

Contractors can use this survey to locate sources of sand and gravel, roadfill, and topsoil. They can use it to identify areas where bedrock, wetness, or very firm soil layers can cause difficulty in excavation.

Health officials, highway officials, engineers, and others may also find this survey useful. The survey can help them plan the safe disposal of wastes and locate sites for recreational uses.

Interpretive Ratings

The interpretive tables in this survey rate the soils in the survey area for various uses. Many of the tables identify the limitations that affect specified uses and indicate the severity of those limitations. The ratings in these tables are both verbal and numerical.

Rating Class Terms

Rating classes are expressed in the tables in terms that indicate the extent to which the soils are limited by all of the soil features that affect a specified use or in terms that indicate the suitability of the soils for the use. Thus, the tables may show limitation classes or suitability classes. Terms for the limitation classes are *not limited, somewhat limited,* and *very limited*. The suitability ratings are expressed as *well suited, moderately suited, poorly suited,* and *unsuited* or as *good, fair,* and *poor*.

Numerical Ratings

Numerical ratings in the tables indicate the relative severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.00 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use and the point at which the soil feature is not a limitation. The limitations

appear in order from the most limiting to the least limiting. Thus, if more than one limitation is identified, the most severe limitation is listed first and the least severe one is listed last.

Crops and Pasture

General management needed for crops and pasture is suggested in this section. The estimated yields of the main crops and pasture plants are listed, the system of land capability classification used by the Natural Resources Conservation Service is explained, and prime farmland is described.

Planners of management systems for individual fields or farms should consider the detailed information given in the description of each soil under the heading "Detailed Soil Map Units." Specific information can be obtained from the local office of the Natural Resources Conservation Service or the Cooperative Extension Service.

The survey area has about 135,000 acres of irrigated cropland and about 335,000 acres of pastureland and hayland. Crops grown include alfalfa, grass hay, and pasture grasses.

Wind erosion is a concern on the eastern side of Harney Basin. Erosion control practices are needed to minimize the risk of wind erosion in cropland areas. The critical wind erosion period is late in winter through early in summer. The Wolverine, Reallis, Enko, and Lawen soils are particularly subject to wind erosion. Plant cover and residue should be maintained on the soil surface during the critical wind erosion period. Alfalfa and grass-legume pasture should be included in the rotation to help build up the content of organic matter in the soil and to protect the soil from wind erosion. Conservation tillage leaves plant residue on the soil surface. Tillage equipment that leaves residue on the surface includes sweeps, chisels, and other implements that do not invert or pulverize the soil. Tillage operations should be conducted at right angles to the prevailing wind, which generally is from the west in most of the survey area. Irrigation can be used to moisten the soil surface and protect it from blowing during the critical wind erosion period. Moist soil particles tend to adhere together and are more resistant to blowing. Tilling when the soil is moist helps to keep the surface rough, thus reducing the risk of wind erosion.

Irrigation systems include use of center pivot, hand line, and side-wheel sprinklers; gated pipe; ditch water distribution; and wild flooding. Low-pressure center pivot sprinkler systems are becoming more popular because of the high cost of energy.

The frequency, duration, and amount of water applied can be controlled easily with these irrigation systems. Center pivot sprinkler systems are particularly well adapted to sandy soils, such as those of the Wolverine, Reallis, Enko, and Lawen series. These soils have a high infiltration rate and moderate or low available water capacity.

Many soils in Harney Basin have a silt loam surface or subsoil that has slow permeability. These soils require light, frequent applications of irrigation water. Irrigation water must be applied carefully to minimize runoff and water erosion.

Soils on nearly level stream terraces are not subject to as much runoff as are the steeper upland soils; however, water management is still important on these soils. Overirrigation leaches plant nutrients, creates a high water table, and in some areas results in an accumulation of salt on the soil surface.

The poorly drained Fury and Ozamis soils have a seasonal high water table. Planting and harvesting of field crops on soils that have a water table close to the surface are significantly restricted. These soils are almost exclusively used for pasture and hay.

As the large lakes of the last Ice Age dried, salts were concentrated and deposited in some of the soils in the basins. The Ausmus, Lolak, and Poujade soils have excess sodium and a high pH value (more than 8.5). These sodic soils have a nutrient

imbalance and a caustic root environment. Crusting caused by the content of sodium reduces the water intake rate, impedes seedling emergence, and restricts seedling survival. A high content of salt is within the root zone in some of these lake basin soils. Practices that can be used to overcome these problems include application of organic material, application of acid-producing fertilizers such as ammonium nitrate and ammonium sulfate, and application of sulphur compounds. Planting crops that can tolerate the saline and sodic conditions can improve the physical condition of the soil. Salt-tolerant crops include barley, Canada wildrye, crested wheatgrass, birdsfoot trefoil, fawn fescue, meadow foxtail, and tall wheatgrass. The kind and amount of fertilizer used should be based on soil tests, the needs of the crop grown, and expected yields.

Yields per Acre

The average yields per acre that can be expected of the principal irrigated crops under a high level of management are shown in table 5. In any given year, yields may be higher or lower than those indicated in the table because of variations in rainfall and other climatic factors. The land capability classification of the soils in the survey area also is shown in the table.

The yields are based mainly on the experience and records of farmers, conservationists, and extension agents. Available yield data from nearby counties and results of field trials and demonstrations also are considered.

The management needed to obtain the indicated yields of the various crops depends on the kind of soil and the crop. Management can include drainage, erosion control, and protection from flooding; the proper planting and seeding rates; suitable high-yielding crop varieties; appropriate and timely tillage; control of weeds, plant diseases, and harmful insects; favorable soil reaction and optimum levels of nitrogen, phosphorus, potassium, and trace elements for each crop; effective use of crop residue, barnyard manure, and green manure crops; and harvesting that ensures the smallest possible loss.

It is assumed that the irrigation system is adapted to the soils and to the crops grown, that good-quality irrigation water is uniformly applied as needed, and that tillage is kept to a minimum.

The estimated yields reflect the productive capacity of each soil for each of the principal crops. Yields are likely to increase as new production technology is developed. The productivity of a given soil compared with that of other soils, however, is not likely to change.

Crops other than those shown in table 5 are grown in the survey area, but estimated yields are not listed because the acreage of such crops is small. The local office of the Natural Resources Conservation Service or of the Cooperative Extension Service can provide information about the management and productivity of the soils for those crops.

Land Capability Classification

Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations designed to show suitability and limitations of groups of soils for rangeland, for forestland, or for engineering purposes.

In the capability system (USDA, 1961), soils are generally grouped at two levels—capability class and subclass.

Capability classes, the broadest groups, are designated by the numbers 1 through 8. The numbers indicate progressively greater limitations and narrower choices for practical use. The classes are defined as follows:

Class 1 soils have slight limitations that restrict their use.

Class 2 soils have moderate limitations that restrict the choice of plants or that require moderate conservation practices.

Class 3 soils have severe limitations that restrict the choice of plants or that require special conservation practices, or both.

Class 4 soils have very severe limitations that restrict the choice of plants or that require very careful management, or both.

Class 5 soils are subject to little or no erosion but have other limitations, impractical to remove, that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 6 soils have severe limitations that make them generally unsuitable for cultivation and that restrict their use mainly to pasture, rangeland, forestland, or wildlife habitat.

Class 7 soils have very severe limitations that make them unsuitable for cultivation and that restrict their use mainly to grazing, forestland, or wildlife habitat.

Class 8 soils and miscellaneous areas have limitations that preclude commercial plant production and that restrict their use to recreational purposes, wildlife habitat, watershed, or esthetic purposes.

Capability subclasses are soil groups within one class. They are designated by adding a small letter, *e, w, s,* or *c,* to the class numeral, for example, 2e. The letter *e* shows that the main hazard is the risk of erosion unless close-growing plant cover is maintained; *w* shows that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c,* used in only some parts of the United States, shows that the chief limitation is climate that is very cold or very dry.

In class 1 there are no subclasses because the soils of this class have few limitations. Class 5 contains only the subclasses indicated by *w, s,* or *c* because the soils in class 5 are subject to little or no erosion. They have other limitations that restrict their use to pasture, rangeland, forestland, wildlife habitat, or recreation.

The capability classification of the soils in this survey area is given in table 5.

Prime Farmland

Prime farmland is one of several kinds of important farmland defined by the U.S. Department of Agriculture. It is of major importance in meeting the Nation's short- and long-range needs for food and fiber. Because the supply of high-quality farmland is limited, the U.S. Department of Agriculture recognizes that responsible levels of government, as well as individuals, should encourage and facilitate the wise use of our Nation's prime farmland.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas. The soil qualities, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. In general, prime farmland has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an acceptable salt and sodium content, and few or no rocks. It is permeable to water and air. It is not excessively erodible or saturated with water for long periods, and it either is not frequently flooded

during the growing season or is protected from flooding. Slope ranges mainly from 0 to 3 percent. More detailed information about the criteria for prime farmland is available at the local office of the Natural Resources Conservation Service.

A recent trend in land use in some parts of the survey area has been the loss of some prime farmland to other uses. The loss of prime farmland to other uses puts pressure on marginal lands, which generally are more erodible, droughty, and less productive and cannot be easily cultivated.

The map units in the survey area that are considered prime farmland are listed in this section. This list does not constitute a recommendation for a particular land use. On the soils included in the list, measures that overcome a hazard or limitation, such as wetness and droughtiness, are needed. Onsite evaluation is needed to determine whether or not the hazard or limitation has been overcome by corrective measures. The extent of each listed map unit is shown in table 4. The location is shown on the detailed soil maps. The soil qualities that affect use and management are described under the heading “Detailed Soil Map Units.”

The map units that meet the requirements for prime farmland if irrigated are:

71 Defenbaugh loam, 0 to 2 percent slopes
75 Dixon gravelly fine sandy loam, 0 to 5 percent slopes
76 Dixon gravelly fine sandy loam, alkali, 0 to 2 percent slopes
83 Drewsey very fine sandy loam, 1 to 5 percent slopes
93 Enko loamy sand, 2 to 8 percent slopes
94 Enko-Catlow complex, 1 to 7 percent slopes
173 Legler silty clay loam, 0 to 3 percent slopes
181 Loupence silt loam, 0 to 2 percent slopes (if drained)
212 Morfitt loam, 0 to 2 percent slopes
235 Norad silt loam, 0 to 1 percent slopes
236 Norad-Spangenburg complex, 0 to 2 percent slopes
251 Ozamis silt loam, 0 to 1 percent slopes (if drained)
282 Rio King loam, 1 to 6 percent slopes
310 Spangenburg silty clay loam, 0 to 1 percent slopes
311 Spangenburg silty clay loam, moist, 0 to 1 percent slopes
312 Spangenburg silty clay loam, thick surface, 0 to 2 percent slopes
358 Wenas-Loupence-Cumulic Haploxerolls complex, 0 to 3 percent slopes (if drained)

Rangeland

Alan V. Bahn, rangeland management specialist, Natural Resources Conservation Service, prepared this section.

The rangeland in the survey area is in the Northern Great Basin, and it lies between the forested hills and mountains of the northern part of Harney County and the Nevada border. Approximately 60 percent of the survey area is rangeland. The rangeland is in a variety of climatic regimes, ranging from warm, low-elevation lake basins and valleys to high-elevation plateaus and fault-block mountain ranges. Seasonal livestock and wildlife use patterns reflect the variability of the rangeland; the warm lake basins and bottomlands provide excellent forage in winter and spring and the high plateaus and mountains provide quality forage in summer. The inherent productivity of the lower elevation, moist flood plains and meadows is especially high.

The vegetation produced on rangeland and other land types helps to control erosion, conserve water, and maintain watersheds; provides habitat for wildlife; and offers scenic and recreational value. Rangeland is an integral part of healthy watersheds. Rangeland plants protect and stabilize soils during runoff. They contribute to soil structure and improve the soil water intake rate. Clean water slowly

released from uplands over an extended period of time, recharged aquifers, and excellent condition riparian areas are indicators of healthy rangeland.

Historical use of the rangeland in the survey area has been extensive and varied. Northern Great Basin and Plateau cultures have inhabited the area from the end of the last cold glacial period through the transition to the present warm period. Native people such as the Northern Paiute lived a nomadic hunting and gathering lifestyle. The annual cycle of movement was based on the correct timing for hunting and gathering various species. A seasonal cycle could include mountain root camps in spring; salmon fishing and camas, seed, and berry gathering in summer; and hunting in fall. The natural setting to which Oregon's Great Basin people were adapted was a rich one. It was extreme and demanding yet generous to those who knew it well.

Domestic livestock have grazed in the survey area since the late 1800's. Major ranching operations were established prior to and during the homestead era. In 1872 Peter French extended his ranch from the Blitzen Valley to much of the western side of the Steens Mountain. On the eastern side of the mountain, John Devine established a large operation centered on the Alvord Ranch. Other large ranches included the Wild Horse, Kueny, and Roaring Springs Ranches. Migrant sheep operations were a major part of the ranching history. Large flocks were pastured throughout the year, progressing from the lower elevation mixed desert shrub sites in winter and early in spring to the higher elevation pastures in summer. Livestock numbers were highest in the early 1900's. The impact of the ranches on the rangeland became apparent with areas of severe overgrazing. Subsequently, management systems were applied and legislation was enacted to protect the rangeland.

Wildlife use patterns and numbers on rangeland have varied considerably. Before 1900, wildlife numbers were low. California bighorn sheep and Rocky Mountain elk were eliminated from their historic range. Improved wildlife management since that time has resulted in an increase in the number and diversity of wildlife. Bighorn sheep have been reintroduced to the Steens Mountain and elk herds have expanded into the northern part of Harney County. Establishment of the Malheur National Wildlife Refuge on the old Pete French Ranch along the Blitzen River has been beneficial to migratory waterfowl. The Hart Mountain Refuge bordering the southwest part of Harney County has benefited antelope and sage grouse. Improved livestock management practices, seedings, water developments, and prescribed grazing systems have had a favorable impact on wildlife populations.

Rangeland Ecological Sites and Forestland Plant Associations

The relationship between the soils and vegetation was established during this survey. Each detailed soil map unit component has been correlated to a rangeland ecological site or a forestland plant association, given in the section "Detailed Soil Map Units" and in table 6. A rangeland ecological site or forestland plant association is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation. It is the product of all environmental factors responsible for its development—soils, climate, landscape position, time, and living organisms. Each ecological site or plant association is recognized and described on the basis of the characteristics that differentiate it from other sites in its ability to produce and support a characteristic plant community.

Historic climax plant community data for each ecological site is also given in table 6. This data includes historic climax plant community species, species composition, and annual production. The historic plant community is the plant community that existed on a site at or prior to European settlement. It is a plant community that is well adapted to the unique combination of environmental factors associated with a given site.

Rangeland Plant Community Dynamics

Primary plant succession occurs as the historical development of an ecological site takes place. Plant succession is the progressive replacement of plant communities on an ecological site that leads to a climax or characteristic plant community. Succession occurs over time and is a result of environmental factors, including natural disturbances. Retrogression is the degradation or shift away from the historic plant community and is a reflection of changes in site conditions. Commonly, site condition changes are irreversible and a different vegetative state develops. This state may be relatively stable and resistant to change, such as low-quality annual range, or it may be a high-quality range seeding.

Range similarity index is a rating used to evaluate an ecological site. It is based on the comparison of the present plant community to either the historic climax plant community or another vegetative state community. The similarity index is the percentage of a specific vegetative state plant community that is presently on the site. It provides an indication of the extent of change needed to establish the desired or historic climax plant community.

Range trend is the direction of the change on a site. The plant community may be either moving toward or away from the historic climax plant community or the desired plant community. This trend provides information needed to ensure that the direction of change will enhance the site and meet the objectives of the manager. As a monitoring guideline it can be used to evaluate the success of a prescribed grazing system and to determine needed refinements.

Further information about the range similarity index and rangeland trend is available in chapter 4 of the “National Range and Pasture Handbook” http://www.nrcs.usda.gov/technical.

Prescribed Grazing Systems

Prescribed grazing is the management of livestock and other browsing animals to achieve specific objectives. It is based on landowner objectives, resource capabilities, and conservation needs. It is used to maintain or improve the health and vigor of selected plants; maintain a stable and desired plant community; provide food, cover, and shelter for livestock and wildlife; improve water quality and quantity; ensure a healthy sustainable soil condition; and promote economic stability.

The major considerations in planning and implementing a prescribed grazing system are limitations in site production and the sensitivity of the key species. A key species is one that serves as a guide to plant community use, health, and trend. It is a palatable species that furnishes excellent forage and at site potential makes up a high percentage of the plant community. Thurber needlegrass and bluebunch wheatgrass are excellent examples of key species in lower lying 7- to 12-inch precipitation zones, and Idaho fescue is an example of a key species in higher lying 12- to 16-inch precipitation zones. Bud sagebrush is an example of a desert shrub key species, and antelope bitterbrush is an example of an excellent shrub key species.

The frequency of defoliation and season of grazing are based on the growth rate, physiological stage of growth, and planned response of key species. It is important to determine whether the key species has adequate vigor and stand density, whether deferment is needed to increase vigor and seed production, and the proper frequency of deferment and effects of rotations. These are basic in determining the response time of key species.

Grazing management practices are used to achieve plant community objectives. Practices include deferment, rest, rotation, proper season of use, proper length of use, and planned use levels. The timing and length of the period of grazing, level of forage use, and use of resting or deferred grazing until after critical periods of plant growth affect plant responses. The effectiveness and acceleration of upward trends

are achieved through repeated deferment and use of other high-response management practices. Desired results are achieved by applying these practices in a well-thought-out sequence and monitoring them over a period of years.

Facilitating practices are used to augment management practices. Accelerated upward trends, improved livestock distribution, and increased production can be achieved with these practices. Foremost of the facilitating improvement practices are water development and cross fencing. Both of these practices help to improve rotations and livestock distribution. Accelerating practices include juniper control and seeding areas in poor condition where desired perennial bunchgrasses are absent. These practices increase production and lengthen the green forage period. Weed control is imperative for optimum sustained production. In areas of grazeable forestland, thinning benefits both the forage and forest resources.

Livestock management involves many range practices. The key to proper management is a grazing system designed to consider plant and animal requirements, topography, and management objectives. Objectives are based on the maintenance or improvement of soil, water, and vegetative resources. If the management objective precludes a higher range site similarity index or site potential because of economic considerations or other considerations, resource maintenance at a sustainable level is imperative. An even or upward trend is required. The level of management should be consistent with the limitations of the vegetative site. At a minimum it should protect the soil and plant resource base, provide for water conservation, and promote improved water quality.

Wildlife extensively use areas of rangeland and forestland for food and cover. The survey area has an excellent balance of seasonal habitat. The higher lying plateaus, meadows, and mountains provide excellent habitat in summer, and the lower lying plateaus and basins provide excellent habitat in winter. Forage late in summer and in fall is most limited on the extensive plateaus because of the droughtiness in summer, limited nutritional quality of feed, and lack of perennial water.

Bud sagebrush, spiny hopsage, fourwing saltbush, bitterbrush, and other palatable shrubs are excellent indicators of the range condition for game. Because these shrubs provide food and cover for many wildlife species, they are subject to overgrazing in areas of critical winter and spring range. Heavy use indicators include complete use of annual twig growth, presence of decadent plants, lack of young shrubs, old uniform-aged stands, and “lollypop” growth on taller shrubs with no basal stem reproduction. Balancing wildlife numbers with habitat capabilities is critical. With the proper level of use, stands of healthy shrubs of varying ages will result.

The habitat and feed requirements for wildlife species are seasonal. Big sagebrush provides important feed and cover in winter to antelope, mule deer, sage grouse, and other species. Mountain sagebrush and Wyoming big sagebrush are preferred forage subspecies. Wyoming big sagebrush provides nearly 100 percent of the food for sage grouse in winter. Nesting cover for sage grouse and other wildlife species is provided by areas that support sagebrush and have about 20 percent or more herbaceous cover.

Understanding the nutritional requirements and patterns of use of individual wildlife species is important. Emergent forbs that are high in protein are needed early in spring for good hatches of sage grouse and early development of the chicks. In areas where western juniper has encroached, use by sage grouse will decrease while use by other wildlife species may increase.

Riparian areas provide important and diverse wildlife habitat. Perennial riparian areas are or have the potential to become dominated by shrubs. Healthy riparian areas have vigorous complex communities of shrubs, forbs, grasses, and grasslike plants. They provide a buffer during periods of high flows and a connection to the flood plain and contribute to the quality of good instream aquatic habitat. The potential for improvement of riparian habitat is excellent with proper management of existing

riparian vegetation and with seeding and planting to adapted native and introduced species. Riparian vegetative recovery time is relatively short because of the presence of a perennial or shallow water table. In areas of severe channel alteration and degradation, longer periods of time and additional effort is required to improve riparian areas. Recovery time is dependent on the severity of the channel alteration and degradation.

Management Interpretations for Uses of Rangeland

Rangeland is fragile by nature because of the limitations in climate, topography, and soil characteristics. Each of these limitations alone or in combination can make an area unsuitable or less suitable for a particular grazing practice. Important limitations that affect grazing management are given in the section “Detailed Soil Map Units” and are described in the following paragraphs.

Aspect.—Aspect is the direction in which a slope faces. The soils on north-facing slopes are cooler, deeper, and more productive for a given precipitation range than are those on south-facing slopes. Depending on elevation, north-facing slopes generally are well suited to grazing by livestock and wildlife late in spring and in summer. South-facing slopes provide excellent range in spring, but they are poorly suited to livestock grazing in summer. South-facing slopes are very important to big game in winter because less snow accumulates on these slopes and they are the first to green up in spring. Both southeast- and west-facing slopes have vegetative site characteristics similar to those of south-facing slopes.

Slope.—The steepness of slope affects livestock use and the feasibility of applying improvement practices. Slopes of 30 percent or less are most preferred by livestock. Areas that have slopes of more than about 50 percent receive very little use even if forage is abundant. Limited livestock use on steep slopes normally is anticipated, and stocking rates are adjusted accordingly. Use of ground equipment is impractical on slopes of more than 30 percent.

Effect of droughtiness or cold temperatures.—Droughtiness in soils reduces the production of forage and limits the choice of species for reseeding. Soils are droughty as a result of low annual precipitation or low available water capacity. Soil characteristics such as coarse texture, shallow depth, or a high content of rock fragments reduce the available water capacity of a soil. Cold temperatures limit the length of the growing season for plants, suppress plant growth, and delay plant development.

Surface stones and cobbles.—The amount of stones and cobbles on the soil surface can influence both grazing management and the potential for revegetation. Some soils have so many stones and cobbles on the surface that livestock avoid them whenever possible. The amount of stones on the soil surface also limits the feasibility of mechanical seedbed preparation and seeding.

Surface texture.—Certain soil surface textures limit use. Soils that have a sandy surface texture are subject to a high hazard of wind erosion. Grazing on these soils should occur late in fall, in winter, and early in spring when the soils are moist and the risk of wind erosion is lowest. Soils that have a silty surface texture and a low content of organic matter are subject to crusting. The formation of a vesicular crust reduces infiltration and seedling emergence. Soils that have a clayey surface texture have a very slow infiltration rate and very slow permeability. In a cold environment, silty and clayey soils are subject to frost heaving. Vegetation is subject to trampling and crown damage if it is grazed when the soils are wet in winter and spring.

High water table.—A high water table occurs seasonally or year round in some soils. Wetness in soils, even if saturated within the root zone for a brief period, impacts the composition and production of vegetation. This is readily apparent in soils that are ponded or have a high water table at or near the surface. Under these conditions, grazing can result in compaction and displacement of the soils and crown

damage to plants. Wet soils are seasonally restricted for mechanical site preparation and are subject to erosion from concentrated flows. Seeding techniques need to be tailored to site conditions, and the species selected must be tolerant of seasonal wetness.

Rock outcrop and escarpments.—Rock outcrop and escarpments occur throughout the survey area. They occur most typically on steep south-, east-, and west-facing slopes. They commonly are formed from geologic faults, glacial action, or exposed sedimentary and igneous rock. Rock outcrop and escarpments can be several hundred feet in length and 10 to several hundred feet in height. They act as physical barriers to domestic livestock and many species of wildlife by preventing or restricting vertical movement. Some wildlife species prefer habitat associated with areas of Rock outcrop and escarpments. Raptors and bighorn sheep, for example, make good use of these areas.

Loss of site potential.—Some of the soils in the survey area have lost a significant amount of the surface layer through wind or water erosion. The loss of this layer can cause major changes in the composition of the plant community. This irreversible change in the plant community is most evident in shallow soils and soils that have a claypan, where the topsoil is thin and the underlying subsoil has slow permeability and is restrictive to root growth. Depending on the extent of the erosion, losses in total production can range from 25 to 50 percent or more.

Restrictions to water developments.—Livestock water developments are needed in most of the grazed areas in the survey area. Spring developments and wells can provide excellent high-quality water in a timely manner. Stock ponds are more limited in terms of quality and seasonal use. They require a careful feasibility study. To prevent a loss of water from the subsoil, stock ponds should be used only on soils that have slow permeability. Soils that are coarse grained, high in content of rock fragments, or shallow to bedrock are poorly suited to pond construction. Because adequate runoff is needed to fill stock ponds, the infrequent runoff typical of areas of low precipitation commonly precludes pond construction in these areas.

General Vegetation Map

The survey area is in four major land resource areas (MLRAs) (USDA, 1981)—Malheur High Plateau (MLRA D23), Humboldt Area (MLRA D24), Upper Snake River Lava Plains and Hills (MLRA B10), and Northern Rocky Mountains (MLRA E43). A major land resource area is a geographically associated land resource unit that is characterized by a particular pattern of soils, climate, water resources, and land uses. MLRAs D23 and D24 are typical of the intermountain fault-block basin and range topography of the survey area.

MLRA D23 is characterized by shrub-steppe grassland. Within the survey area, it is known as the Oregon High Desert. Precipitation is 8 to 11 inches in the cold basins, 10 to 12 inches in the extensive plateaus areas, and 12 to 16 inches on the buttes and higher plateaus. On the higher fault-block mountains, the precipitation is 16 to 40 inches. The area has cold (frigid or cryic) soil temperatures throughout. The surface layer of the soils is loamy, and the soils typically are moderately deep or shallow. Elevation ranges from about 4,000 to 9,700 feet. The vegetation typically is bunchgrass grassland with an open sagebrush overstory. The dominant bunchgrasses are Thurber needlegrass, bluebunch wheatgrass, and Idaho fescue. Big sagebrush occurs on the moderately deep soils, and low sagebrush occurs on the shallow soils that have a claypan. Western juniper invades in the higher 12- to 16-inch precipitation zone.

MLRA D24 within the survey area is primarily in the warm basins. It is characterized by mixed desert shrub grassland. The precipitation ranges from 7 to 10 inches. The area has warm (mesic) soil temperatures throughout. The surface layer of the soils typically is loamy. Soil depth is variable. Elevation ranges from 3,400 to 5,500

feet. Vegetation is variable. Stands of saltgrass/greasewood are adjacent to open playas at low elevations, stands of basin wildrye are on flood plains, mixed desert shrubs are on sodic soils and in areas of low precipitation, and big sagebrush with needlegrasses, Indian ricegrass, and other bunchgrasses are in sandy areas.

MLRA B10 within the survey area is in the Malheur drainageway and along the forest border, in the northern part of the survey area. It is characterized by shrub-steppe grassland. Precipitation ranges from 9 to 12 inches at the lower elevations to 12 to 18 inches on the higher plateaus. The area has warm (mesic) soil temperatures at the lower elevations and cold (frigid) soil temperatures at the higher elevations. The soils typically have a silty clay loam to silt loam surface layer over a fine textured subsoil. Soil depth is moderately deep to very shallow. Elevation ranges from 3,400 to 6,600 feet. The vegetation typically is bunchgrass grassland with an open sagebrush overstory. The dominant bunchgrasses are bluebunch wheatgrass in the warmer, low-elevation areas and Idaho fescue in the cooler, upland areas. Big sagebrush occurs in areas of moderately deep soils, and stiff sagebrush occurs in areas of very shallow soils. Western juniper invades in the higher 12- to 18-inch precipitation zone.

MLRA E43 within the survey area is on the higher plateaus, hills, and mountains at the northern end of the survey area. It is characterized by woodland vegetation. Minor amounts of open grassland are confined to the lower precipitation areas, meadows, and shallow soils. Precipitation ranges from 16 to 20 inches. The area has cold (frigid) soil temperatures throughout. The soils typically are loamy and are moderately deep or shallow. Elevation ranges from 5,400 to 6,500 feet. The vegetation is dominantly ponderosa pine with an open understory of grasses, grasslike plants, and small shrubs.

The rangeland ecological sites and forestland plant associations within the survey area can be placed into thirteen general plant association groups. Grouping is based on similarities in climate, landform, soil, and vegetation. The location and extent of these groups are shown on the General Vegetation Map. A description of each group follows.

1—Saline-sodic lake plains and playas.—Playas occupy the lowest positions in lake basins. They typically are clayey, seasonally dry and wet, have a water table at varying depths, and are subject to surface ponding. On highly saline-sodic playas, vegetation is absent. The Alvord Desert is an example. Surrounding the playas, saltgrass infringes on seasonally moist saline-sodic flats. Greasewood is present on small mounds or hummocks. Greasewood/saltgrass associations are dominant. As the distance from the playas increases, eolian and alluvial deposits of soil material accumulate over the sodic soil surface. Typically, an overlay of loam only a few inches thick results in significant changes in the plant community. Basin wildrye becomes more prevalent as the depth of the overlay increases and sodium salts in the soil decrease. Greasewood/basin wildrye/saltgrass associations are dominant. Soils that support these plant associations include those of the Alvodest, Droval, and Ausmus series.

2—Saline-sodic lake terraces and fans.—Low terraces typically are around lake basins. Mixed desert shrub associations occur on dry saline-sodic lake terraces and fans. These associations are most prevalent in Pueblo Valley with lesser amounts adjacent to Harney and Malheur Lakes. A mixture of shrubs adapted to the sodic conditions make up these associations. The shrubs include greasewood, shadscale, bud sagebrush, and spiny hopsage and to a lesser extent basin big sagebrush. Soils that support these plant associations include those of the Defenbaugh, Turpin, Icene, and Mesman series.

3—Marshes, meadows, and stream terraces.—Very poorly drained to somewhat poorly drained soils in marshes near lakes and along rivers that support dominantly bulrush associations near open water and burreed and cattail associations farther away from the open water areas. Meadows support dominantly Nebraska sedge,

Baltic rush, and beardless wildrye associations. Soils that support these plant associations include those of the Jimgreen, Housefield, Doubleo, Skunkfarm, and Fury series.

Very deep, moderately well drained soils on stream terraces along perennial rivers and streams are highly productive. Basin wildrye associations historically have been dominant in these areas. These associations are common along the Silvies, Blitzen, and Malheur River drainageways. Basin big sagebrush is minor because of recurring fire. Because of its deep, extensive root system, basin wildrye production is directly correlated to the extent and duration of surface and subsurface water. Soils that support these plant associations include those of the Widowspring, Loupence, Roschene, and Rio King series.

4—Well drained to somewhat poorly drained, very deep, loamy and clayey lake terraces.—Soils that are on loamy lake terraces and have a nonsodic subsoil support basin big sagebrush/basin wildrye associations. These soils are subject to seasonal ponding and are less productive than the soils on stream terraces. As a result of the ponding, they consist of stratified, compacted loam and clay. They are free of sodium salts except in the lowest positions. Soils that support these plant associations include those of the Dixon, Spangenburg, and Mcbain series.

Soils that are on loamy lake terraces and have a sodic subsoil support basin big sagebrush/greasewood/basin wildrye associations. These associations historically were prevalent in many of the lake basins. They are typical on the terraces east of Burns, toward Crane. The associations reflect the presence of a nonsaline surface layer over a sodic subsoil. Sodic soil conditions typically increase as depth increases. The production of basin wildrye increases as wetness increases. Soils that support these plant associations include those of the Poujade and Voltage series.

Frequent ponding occurs in nonsaline-nonsodic swales in the basins. The surface layer generally is clayey or silty. Silver sagebrush and Nevada bluegrass typically grow in these areas. Nevada bluegrass historically is dominant in the swales and on the outer fringe of the swales. The center part of the swales typically is devoid of vegetation. Silver sagebrush increases if the areas are overgrazed. Soils that support this plant association include those of the Crowcamp and Swalesilver series. In less frequently ponded swales, beardless wildrye is more abundant. Beardless wildrye reflects a more droughty condition, and it typically is in areas such as those near the old townsite of Blitzen, in Catlow Valley.

On the nonsaline-nonsodic clayey soils of terraces, the vegetation is dominantly sparse stands of Wyoming big sagebrush and Sandberg bluegrass with minor amounts of other grasses. These areas can be extensive. They are ponded for only a very short period in spring. A typical area is south-central Catlow Valley. The soils are clayey with a strong vesicular crust. Saltgrass and other salt-adapted species are absent. As the thickness of the loam surface layer increases, the abundance of basin wildrye increases. Soils that support these plant associations include those of the Spangenburg and Berdugo series.

5—Well drained, very deep, silty lake terraces.—Winterfat plant associations occur on dry silty terraces at the southern end of Catlow Valley and to a lesser extent in eastern Pueblo Valley. These unique and productive plant associations are confined to very deep silty soils. Clayey swale areas that are subject to intermittent, short-duration ponding dominantly support basin big sagebrush and beardless wildrye. Soils that support these plant associations include those of the Norad, Spangenburg, and Morfitt series.

6—Well drained and somewhat excessively drained, very deep, loamy and sandy lake terraces.—Basin big sagebrush/needleandthread associations occur on sandy to loamy terraces and dunes around the fringes of lake basins. The abundance of Thurber needlegrass increases in areas where the surface layer is more loamy. In warmer lower precipitation areas, Indian ricegrass and sand dropseed are more

abundant on sandy soils and dunelike hummocks. An example is in the 7- to 10-inch precipitation zone at the south end of the survey area, in Pueblo Valley. In eastern Pueblo Valley, isolated small areas of coarse textured sandy soils with deep rooting potential support fourwing saltbush. Similar small dune areas in Catlow Valley support bitterbrush. Soils that support these plant associations include those of the Davey, Lawen, Enko, and Wolverine series.

7—Well drained, shallow and moderately deep, loamy lake terraces and plateaus.—Terraces and plateaus in the 7- to 10-inch precipitation zone are characterized by two distinct plant associations. Shadscale/bud sagebrush associations occur extensively on the shallow, slightly sodic soils east of Fields, toward Whitehorse and on north to Burns Junction. Interspersed with this association in areas of less sodic soils and equally as extensive is the Wyoming big sagebrush/Thurber needlegrass association. The abundance of Thurber needlegrass, Indian ricegrass, and bluebunch wheatgrass has decreased greatly as a result of overgrazing. Annuals invade the overgrazed areas, and an erosion pavement develops in the interspaces.

Mixed desert shrub associations occur on the plateaus and terraces adjacent to the Pueblo Mountains. These associations reflect the droughty, low precipitation conditions and strong alkalinity of the soils. Wyoming big sagebrush, shadscale, spiny hopsage, and ephedra make up these associations. Grasses include desert needlegrass and Thurber needlegrass on the south-facing slopes and bluebunch wheatgrass on the north-facing slopes.

Soils that support these plant associations include those of the Deppy, Skedaddle, Tumtum, and Atlow series and the low precipitation phases of the Raz and Brace series.

8—Warm hills.—Wyoming big sagebrush and bluebunch wheatgrass associations occur on the warm hills of the Upper Malheur drainageway, near Warm Springs Reservoir. Precipitation is about 9 to 12 inches. Bluebunch wheatgrass is prevalent on soils that have a silt loam to clay loam surface layer, which is typical of the soils in this area. Thurber needlegrass is more prevalent on soils that have a coarser textured surface layer, which is characteristic of those on the cold, dry plateaus and hills farther south and west. As in similar low precipitation areas, Wyoming big sagebrush and Idaho fescue associations are dominant on the north-facing slopes. Soils that support these plant associations include those of the Mahoon, Risley, Poall, Gumble, and Modoc series.

9—Cold, dry plateaus and hills.—This is the most extensive plant association group within the survey area. Precipitation is about 10 to 12 inches. The vegetation is characterized by two distinct historical plant associations that are directly dependent on soil depth. Wyoming big sagebrush/Thurber needlegrass-bluebunch wheatgrass associations occur on the loamy, moderately deep soils. Low sagebrush/Thurber needlegrass-bluebunch wheatgrass associations occur on the soils that are shallow to a claypan. Both of these association types are extensive. Thurber needlegrass is common throughout, but it is more prevalent on soils that have a coarser textured surface layer. Western juniper typically is absent. Soils that support these plant associations include those of the Raz, Anawalt, Swaler, Brace, and Wagontire series and the dry phase of the Ninemile series.

10—Cold, moist southern and central plateaus and hills.—The plateaus and hills in the central and southern parts of the survey area are in a 12- to 16-inch precipitation zone. They are characterized by two distinct historical plant associations that are dependent on soil depth. Mountain big sagebrush/Idaho fescue-Thurber needlegrass associations occur on the loamy, moderately deep soils. Low sagebrush/Idaho fescue-Thurber needlegrass associations occur on the soils that are shallow to a claypan. Both of these association types are extensive. Thurber needlegrass is common throughout, but it is most prevalent in areas that have a coarser textured

surface layer. Western juniper is present on these hills and plateaus because of the absence of fire. Soils that support these plant associations include those of the Carryback and Teguro series and the moist phase of the Ninemile series.

11—Cold, moist northern hills and mountains.—The hills and mountains in the northern part of the survey area, bordering the forestland, are also in a 12- to 16-inch precipitation zone. This area differs from the southern and central plateaus and hills in that the soils have a higher content of silt and clay in the surface layer. Idaho fescue is more prevalent on these surfaces, and Thurber needlegrass is less abundant. Bluebunch wheatgrass is confined to the south-facing slopes in this precipitation zone.

Three distinct historical plant associations that are dependent on soil depth are present in this area. Mountain big sagebrush/Idaho fescue associations are on the moderately deep clay loam soils. Low sagebrush/Idaho fescue and stiff sagebrush/Idaho fescue plant associations are on the soils that are shallow to a claypan and are underlain by bedrock. These associations are extensive. Western juniper is present in this area because of the absence of fire. Soils that support these plant associations include those of the Observation, Vitale, Merlin, Ateron, and Doyn series.

12—Cold, wet mountains.—Cold mountains, including the Steens and Trout Creek Mountains, are in the higher 16- to 40-inch precipitation zone. A progression of plant associations occurs as precipitation increases. On Steens Loop Road, mountain big sagebrush uniformly decreases in stature as elevation increases. It is absent at the higher elevations. On moderately deep soils, the plant associations progress from mountain big sagebrush/Idaho fescue /sheep fescue to mountain big sagebrush/sheep fescue to rough fescue at the high elevations. Sheep fescue/skyline bluegrass associations occur on shallow soils at the high ridgeline. Juniper is absent at the higher elevations. Tufted hairgrass is in meadows and seep areas. Aspen groves are present in concave areas, such as in the vicinity of Fish Lake and in the Trout Creek Mountains. Soils that support these plant associations include those of the Baconcamp, Clamp, Dickle, and Hackwood series.

13—Forestland.—Forests and forest fringe areas occur on hills and mountains at the north end of the survey area. Ponderosa pine/mountain big sagebrush/Idaho fescue associations are dominant in the fringe areas. Antelope bitterbrush is a typical component of these associations. Western juniper is present because of the absence of fire. Mountain mahogany occurs on the shallow rocky outcroppings. As the moisture increases, ponderosa pine/elk sedge associations become prevalent and sagebrush, bitterbrush, and juniper are absent. Soils that support these plant associations include those of the Royst, Gaib, Egyptcreek, and Klicker series.

Riparian Areas

Riparian areas occur throughout the survey area. They provide forage, help to maintain good water quality, and provide critical wildlife habitat. As a form of wetland transition between permanently saturated wetland and upland areas, riparian areas occur along streams, lakes, and marshy areas. They are dynamically changing areas with relatively young soils. The plant communities reflect the depth and duration of the subsurface moisture.

Because willow species are highly dependent on temperature and moisture, they progressively change from tall willows along lower elevation rivers and streams to short willows along higher elevation streams. Willows typically are the dominant shrub component. Successional changes are readily seen with the appearance of coyote willow on point bars. Alder typically occurs on higher gradient gravelly streambanks. Subject to constant flow changes, riparian areas dissipate energy, filter sediment, improve ground-water recharge, and provide habitat for numerous aquatic and terrestrial wildlife species.

Ecological Sites, Plant Associations, and Characteristic Plant Communities

In areas that have similar climate and topography, differences in the kind and amount of rangeland or forest understory vegetation are closely related to the kind of soil. Effective management is based on the relationship between the soils and vegetation and water.

Table 6 shows, for each soil that supports vegetation suitable for grazing, the ecological site or plant association; the total annual production of vegetation in favorable, normal, and unfavorable years; the characteristic vegetation; and the average percentage of each species. An explanation of the column headings in the table follows.

An *ecological site or plant association* is the product of all the environmental factors responsible for its development. It has characteristic soils that have developed over time throughout the soil development process; a characteristic hydrology, particularly infiltration and runoff, that has developed over time; and a characteristic plant community (kind and amount of vegetation). The hydrology of the site is influenced by development of the soil and plant community. The vegetation, soils, and hydrology are all interrelated. Each is influenced by the others and influences the development of the others. The plant community on a site is typified by an association of species that differs from that of other sites in the kind and/or proportion of species or in total production. Descriptions of ecological sites are provided in the Field Office Technical Guide, which is available in local offices of the Natural Resources Conservation Service. Descriptions of plant associations are provided in the publication "Plant Associations of the Blue and Ochoco Mountains" (Johnson and Clausnitzer, 1991).

Total dry-weight production is the amount of vegetation that can be expected to grow annually in a well managed area that is supporting the potential natural plant community. It includes all vegetation, whether or not it is palatable to grazing animals. It includes the current year's growth of leaves, twigs, and fruits of woody plants. It does not include the increase in stem diameter of trees and shrubs. It is expressed in pounds per acre of air-dry vegetation for favorable, normal, and unfavorable years. In a favorable year, the amount and distribution of precipitation and the temperatures make growing conditions substantially better than average. In a normal year, growing conditions are about average. In an unfavorable year, growing conditions are well below average, generally because of low available soil moisture. Yields are adjusted to a common percent of air-dry moisture content.

Characteristic vegetation—the grasses, forbs, and shrubs that make up most of the historic climax plant community on each soil—is listed by common name. Under *composition*, the expected percentage is given as dry weight for rangeland and as cover for forestland for each species making up the characteristic vegetation.

Forestland Management and Productivity

Craig Zeigler, State woodland specialist, National Resources Conservation Service, prepared this section.

Less than 1 percent of the survey area is classified as commercial forestland. The towns of Burns and Hines are recognized as the centers of the forest products industry in Harney County. The county has one wood products manufacturing company. The Forest Service, Bureau of Land Management, Oregon Department of Forestry, and Malheur Wildlife Refuge provide fire protection.

The productivity of the forest is closely related to the soil properties. The content of rock fragments, depth to bedrock, rooting depth, content of clay in the subsoil, and steepness of slope influence forest management.

Two principal forest cover types are recognized in the forested areas of the survey area—Interior Ponderosa Pine and Interior Douglas Fir. The soils of the Interior Ponderosa Pine type are shallow to deep over bedrock and are well drained. The vegetation includes, but is not limited to, ponderosa pine, western juniper, snowberry, elk sedge, pinegrass, Idaho fescue, bluebunch wheatgrass, lupine, and yarrow.

The Interior Douglas Fir type typically occurs on cool, north-facing hillsides. It is associated with soils of the Klicker series. The vegetation includes, but is not limited to, Douglas fir, ponderosa pine, grand fir, lodgepole pine, snowberry, serviceberry, Oregongrape, pinegrass, elk sedge, heartleaf arnica, and woodland strawberry.

Repeated fires in the survey area once favored the establishment of ponderosa pine and lodgepole pine. Controlled fires and silvicultural treatments are now being used to maintain seral species in many managed stands.

The majority of the forestland in the survey area provides forage for livestock and wildlife. A low amount of forage is available under many timber stands, and the palatability ranges from low to high. The ponderosa pine stands can produce high-quality bunchgrass.

Timber management practices can improve the production for livestock. Harvesting timber creates openings that provide transitory range until the replanted tree seedlings shade out the undergrowth (30 to 50 years). This temporary range contributes significantly to the amount of forage for livestock. Transitory range also makes it possible to distribute livestock away from traditional concentration areas, such as riparian areas, and onto sites that have received little, if any, use by livestock.

Many diseases and insects may present problems in individual tree stands and affect the forested areas. The amount of damage varies dramatically from year to year. In some areas, dwarf mistletoe (*Arceuthobium spp.*) is a minor parasite on ponderosa pine and Douglas fir. Mistletoe infestations make trees more susceptible to other diseases. Laminated root rot (*Phylinius weirii*) is a serious disease of Douglas fir. Other diseases are also present and at any given time may be a serious problem in individual stands. The insect that presents the most serious problem is the mountain pine beetle (*Dendroctonus ponderosae*). It primarily attacks pine trees that are 10 to 16 inches in diameter at breast height. Another similar pest is the western pine beetle (*Dendroctonus brevicomis*). Managing the stands for the development of healthy trees will protect the stands against these pests. The pine engraver (*Ips pini*) breeds in slash piles, and outbreaks occur in years of drought. Occasionally, large populations of Douglas fir tussock moth (*Hemerocampa pseudotsugata*) are present and can kill Douglas fir and grand fir trees in stressed stands. The fir engraver (*Scolytus trails*) is a native bark beetle that primarily attacks true firs. It presents the most significant bark beetle problem for white fir. Outbreaks occur at irregular intervals, generally following drought or defoliation, which lowers the resistance of the trees. This beetle can cause severe mortality of trees. In Douglas fir habitat types, the western spruce budworm (*Choristoneura occidentalis*) can be a major defoliator in stressed stands. Wide spacing of trees helps to deter invasion. Fomes rootrot (*Fomes anosa*) and brown stringy rot (*Echinodontium tinctorium*) are two of the many fungi that attack live white fir trees. Wounds from fire and mechanical activities are the most significant entry points for fungi.

Soil surveys are important to woodland managers as they seek ways to increase the productivity of the woodland. Certain soils respond better to fertilization, some are susceptible to landslides and erosion after roadbuilding and harvesting, and others require special efforts to harvest and reforest (USDA, National Forestry Manual).

Forestland Management

Tables 7a and 7b give, for each soil that supports forestland, ratings for a number of concerns that should be considered in forestland management. Information on

each of the management concerns is given in the following paragraphs.

Potential erosion hazard (off-road)

Definition: The hazard or risk of soil loss in off-road or off-trail areas after disturbance activities that expose the soil surface.

Nature of activity: Sheet and rill erosion in areas where the soil surface is exposed as a result of various activities such as silvicultural practices, grazing, mining, and installation of firebreaks or as a result of fire.

Types of disturbance: Activities that result in exposure of 50 to 75 percent of the affected area. Clean tillage and other similar activities that disturb as much as nearly 100 percent of the area and change the character of the soil surface are not considered in the rating.

Causes of disturbance: Equipment and uncontrolled grazing.

Resource conditions: Fifty to seventy-five percent of the mineral surface layer is exposed and roughened (Histosols are excluded from evaluation). Individual precipitation or storm events are not considered in the rating.

Other features: This interpretation is for sheet and rill erosion; gully erosion is not considered. The ratings do not include a sediment production/delivery ratio or streambank or streambed erosion for watercourses. The effect of ground-disturbing activities on the amount of surface or subsurface runoff is not evaluated.

Limitation classes: A rating of *slight* indicates that erosion is unlikely under ordinary climatic conditions. A rating of *moderate* indicates that some erosion is likely and measures to control erosion may be needed. A rating of *severe* indicates that erosion is very likely. Measures to control erosion for reestablishment of vegetation in exposed areas and structural measures are needed. A rating of *very severe* indicates that significant erosion is expected, loss of soil productivity and offsite damage are likely, and measures needed to control erosion are costly and generally impractical.

Management implications: A rating of moderate, severe, or very severe may indicate the need for use of special harvesting systems and/or alternative site preparation techniques and timing.

Soil rutting hazard

Definition: The hazard or risk of ruts developing in the uppermost soil layers as a result of the operation of forest equipment. Soil displacement and puddling (soil deformation and compaction) may occur simultaneously with rutting.

Nature of activity: Operation of equipment (3 to 10 passes) on forested sites when the soil moisture content is near field capacity or on forested sites that have a year-round water table at a depth of less than 12 inches.

Type of disturbance/depth: Depth of ruts commonly range from 2 to 24 inches, depending in part on the weight of the equipment (including carried or pulled loads) and the shape and size of the wheels.

Type of equipment: Standard rubber-tired vehicles (nonflotation tires).

Resource conditions: Soils that have slopes and other characteristics that allow for use of ground-based equipment. An unfrozen surface condition (thawed to a depth of at least 24 inches) and a lack of organic material or vegetation on the surface are assumed. A year-round water table at a depth of less than 12 inches is considered.

Other features: This interpretation includes soil displacement and puddling, which can affect the esthetics, groundwater hydrology, and productivity of the site.

Limitation classes: A rating of *slight* indicates that little, if any, rutting will occur. The season of use generally is not restricted, and special equipment is not needed. A rating of *moderate* indicates that rutting is likely. Seasonal restrictions for use of wheeled and tracked equipment should be considered. Roads may need additional rock in the subgrade and surface grade. A rating of *severe* indicates that rutting

occurs readily. Extreme caution is advised during harvest and in areas where mechanical methods of slash disposal and site preparation are used. Roads likely will need additional rock in the subgrade and surface grade. Some restorative activities, such as ripping, likely will be needed.

Management implications: A rating of moderate or severe indicates that roads will need additional rock in the subgrade and surface grade for year-round use and/or indicates the need to consider restrictions on the use of wheeled and tracked equipment and to closely monitor the location of roads and skid trails, mechanical slash disposal, and site preparation activities. In areas where excessive rutting has occurred, use of the access system may be restricted or plant recovery rates may be delayed. Rutting in sloping areas may result in channelization of surface water and may affect hydrology.

Suitability for roads and landings (natural surface)

Definition: Suitability of the natural surface of the soil for use as roads and landings for trucks that transport logs and other wood products from the site.

Nature of activity: Efficient use of equipment for the temporary storage, handling, and safe transport of forest products.

Type of disturbance/depth: Vegetation and debris are cleared from an area sufficient in size for a road or landing. Typically, 100 percent of the soil surface is disturbed, resulting in rutting, puddling, or displacement to a depth of as much as 18 inches.

Types of equipment: Grapple hooks, skidders, loaders, cable yarders, and trucks ranging from 1/2-ton capability to those that are capable of transporting entire logs.

Resource condition: The landscape is assessed in its natural setting (without cuts and fills). Only areas that have slopes of less than 20 percent are considered. Non-soil obstacles, such as slash, are not considered in the ratings. Use occurs during customary periods for the local area. The soils are not frozen or covered with snow. Flooding, ponding, and presence of a high water table are considered in the rating.

Scale of application: Roads generally are less than 1 mile in length, and the running surface is as much as 20 feet wide. Log landings generally are 1/2 acre in size or less.

Suitability classes: A rating of *suited* indicates few, if any, restrictions to use for natural surface roads and log landings. A rating of *moderately suited* indicates one or more restrictions. A rating of *poorly suited* indicates one or more restrictions generally make use of the site for natural surface roads and log landings very difficult or unsafe.

Management implications: A rating of moderately suited or poorly suited may indicate the need for surfacing, properly designed drainage systems, or use of alternate routes.

Construction limitations for roads and landings

Definition: Limitations for constructing haul roads and log landings.

Nature of activity: Earth-moving activities used to meet the standards and specifications for haul roads and log landings.

Type of disturbance/depth: Excavation, removal, and shaping of native soil material to develop haul roads and log landings for forest harvesting and other management activities. Cuts and fills are less than 10 feet deep.

Types of equipment: Bladed crawler tractors, excavators, graders, and other primary construction equipment are considered.

Resource conditions: Construction activities occur during customary periods for the local area. The soils are moist; they are not frozen, covered with snow, saturated, ponded, or flooded. A year-round high water table, year-round ponding, and permafrost are considered in the rating.

Scale of application: Roads are as much as 1 mile in length, and the running surface is as much as 20 feet wide.

Limitation classes: A rating of *slight* indicates few, if any, limitations for construction activities. A rating of *moderate* indicates that one or more limitations will cause some difficulty. A rating of *severe* indicates that one or more limitations make construction of haul roads and log landings very difficult and/or costly.

Management implications: A rating of moderate or severe may indicate the need to use alternate routes and construction methods and the need to limit the period of operation.

Operability of wheeled and tracked equipment

Definition: The suitability for operating ground-based wheeled and tracked harvesting equipment.

Nature of activity: Off-road transport or harvest of logs and/or wood products by ground-based wheeled and tracked equipment.

Type of disturbance/depth: Activities typically disturb 35 to 75 percent of the surface, resulting in rutting, puddling, or displacement to a depth of as much as 18 inches.

Types of equipment: Standard rubber-tired skidders and bulldozers used for ground-based harvesting and transport.

Resource condition: Non-soil obstacles, such as slash, are not considered in the ratings. Activities occur during customary periods for the local area. The soils are moist; they are not frozen, covered with snow, saturated, ponded, or flooded. A year-round high water table is considered in the rating.

Suitability classes: A rating of *well suited* indicates that use of equipment normally is not restricted. A rating of *moderately suited* indicates that one or more restrictions reduce the effective and safe use of equipment. A rating of *poorly suited* indicates that one or more restrictions make the use of equipment impractical or unsafe.

Management implications: A rating of moderately suited or poorly suited may indicate a need for choosing the proper equipment or for timing the operations to avoid seasonal limitations.

Mechanical site preparation (surface)

Definition: The suitability of using surface-altering soil tillage equipment.

Nature of activity: Modification of the soil surface to prepare a site for planting or seeding.

Type of disturbance/depth: Generally, as much as 50 to 75 percent of the site is affected to a depth of as much as 12 inches. Features and characteristics of the soil to a depth of 12 inches are considered.

Types of equipment: Brush rakes, chisels, disks, and other similar implements pulled by bulldozers or tractors (D6/D7, 150-horsepower tractor or equivalent).

Resource conditions: Non-soil obstacles, such as slash, are not considered in the ratings. Activities occur during customary periods for the local area. Only natural restrictive layers are considered; layers compacted as a result of harvesting or other site activities are not considered. The soils are moist; they are not frozen, covered with snow, saturated, ponded, or flooded. A year-round high water table and year-round ponding are considered in the rating.

Suitability classes: A rating of *suited* indicates that equipment use normally is not restricted. A rating of *poorly suited* indicates that one or more restrictions reduce the effective and safe use of equipment. A rating of *unsuited* indicates that one or more restrictions generally prevent the effective and safe use of equipment.

Management implications: A rating of poorly suited or unsuited indicates the need to closely monitor mechanical slash disposal and site preparation activities or to use alternative methods.

Mechanical site preparation (deep)

Definition: The suitability of using deep soil tillage equipment.

Nature of activity: Subsoiling, ripping, and other subsurface soil disturbance across the slope.

Type of disturbance/depth: Generally, as much as 50 to 75 percent of the site is disturbed to a depth of 36 inches to break up restrictive or compacted layers and increase infiltration for plant growth. Features and characteristics of the soil to a depth of 36 inches are considered.

Types of equipment: Rippers, subsoilers, and other implements pulled by bulldozers (D8 or equivalent) that till to a depth of more than 12 inches.

Resource conditions: Non-soil obstacles, such as slash, are not considered in the ratings. Activities occur during customary periods for the local area. Only natural restrictive layers are considered; layers compacted as a result of harvesting or other site activities are not considered. The soils are moist; they are not frozen, covered with snow, saturated, ponded, or flooded. A year-round high water table and year-round ponding are considered in the rating.

Suitability classes: A rating of *suited* indicates that equipment use normally is not restricted. A rating of *poorly suited* indicates that one or more restrictions reduce the effective and safe use of equipment. A rating of *unsuited* indicates that one or more restrictions generally prevent sufficient deep mechanical site preparation.

Management implications: A rating of unsuited indicates that mitigating activities are not feasible; therefore, soil-compacting operations should be avoided.

Suitability for hand planting

Definition: The expected difficulty of hand planting.

Nature of activity: Proper placement of the root system of tree and shrub seedlings during the customary local planting times. Bareroot stock, tublings, containerized stock, and cuttings are considered in the rating.

Type of disturbance/depth: Roots are placed to a depth of as much as 12 inches.

Types of equipment: Spades, dibbles, planting bars, or other similar planting tools. Human-held power equipment, such as power augers, is not considered.

Resource conditions: Non-soil obstacles, such as slash, are not present. Necessary site preparation is completed before the suitability for hand planting is assessed. Planting activities occur during customary periods for the local area. Only natural restrictive layers are considered; layers compacted as a result of harvesting or other site activities are not considered. The soils are moist; they are not frozen, covered with snow, saturated, ponded, or flooded. A year-round high water table and year-round ponding are considered in the rating.

Suitability classes: A rating of *well suited* indicates that hand planting normally is not restricted and planting rates are not affected. A rating of *moderately suited* indicates that one or more restrictions impede planting and reduce planting rates. A rating of *poorly suited* indicates that one or more restrictions severely impede planting and reduce planting rates. A rating of *unsuited* indicates that site factors and features prevent the proper planting of seedlings.

Management implications: A rating of moderately suited or poorly suited indicates that overcoming the obstacles likely will result in increased planting costs.

Suitability for mechanical planting

Definition: Difficulty of planting trees or shrubs with a mechanical planter.

Nature of activity: Proper placement of the root system of tree and shrub seedlings during the customary local planting times. Bareroot stock, tublings, containerized stock, and cuttings are considered in the rating.

Type of disturbance/depth: Mechanical planters create narrow furrows or trenches as much as 12 inches deep and are operated on the contour or across the slope.

Type of equipment: Mechanical planter on a 3-point hitch pulled by sufficiently powerful equipment. The planter has a coulter, shank or trench “shoe,” and packing wheels.

Resource conditions: Non-soil obstacles, such as slash, are not present. The necessary site preparation is completed before the suitability for mechanical planting is assessed. Planting activities occur during customary periods for the local area. Only natural restrictive layers are considered; layers compacted as a result of harvesting or other site activities are not considered. The soils are moist; they are not frozen, covered with snow, saturated, ponded, or flooded. A year-round high water table and year-round ponding are considered in the rating.

Suitability classes: A rating of *well suited* indicates that there are few, if any, restrictions to mechanical planting and planting rates are not affected. A rating of *moderately suited* indicates that one or more restrictions impede planting and reduce planting rates. A rating of *poorly suited* indicates that one or more restrictions severely impede planting and reduce planting rates. A rating of *unsuited* indicates that site factors and features prevent mechanical planting of seedlings.

Management implications: A rating of moderately suited or poorly suited indicates that overcoming the obstacles likely will result in increased planting costs or that use of hand planting should be considered.

Seedling mortality

Definition: The likelihood of death of naturally occurring or planted tree seedlings as influenced by soil characteristics, physiographic features, and climatic conditions.

Nature of activity: Tree seedlings have sufficient moisture and nutrients in a nontoxic rooting medium to survive through the establishment period.

Type of disturbance/depth: The upper 20 inches of the soil is evaluated. Site preparation normally precedes planting. The immediate area around the seedling is assumed to be free of vegetation; the effect of competing plants is not considered. Seedling root length typically is 10 to 14 inches. Seedlings can be planted by hand or machine.

Resource conditions: Acceptable-sized seedlings of adapted species are properly planted during a time of sufficient soil moisture and temperature to ensure initial root growth. Equivalent acceptable-sized seedlings are assumed for naturally occurring seedlings of adapted species.

Other factors: The effects of an overstory tree canopy (more than 15 feet in height) or adjacent competing plants (less than 15 feet in height) are not considered nor are pests that can affect seedlings. Near-normal monthly and yearly climatic conditions are assumed. Planting of slips or poles is not considered. Adapted species that are tolerant of wetness are not evaluated specifically unless all the adapted species are tolerant of wetness.

Rating classes: A rating of *low* indicates that seedlings are expected to develop normally and become established. A rating of *medium* indicates that root development is sufficiently retarded by one or more site factors that death of some seedlings (as many as 1 in 3) occurs and establishment of surviving seedlings is delayed. A rating of *high* indicates that seedlings are not expected to survive (at least 2 in 3 die) unless special treatment or management is used.

Management implications: A rating of medium or high may indicate the need to use larger than normal planting stock, special site preparation, seedling protection, natural regeneration harvest methods, surface drainage, or reinforcement planting.

Damage to Soil by Fire

Definition: The risk that fire will have a negative impact on the soil nutrients and the physical and biotic soil characteristics.

Nature of disturbance: Fires (prescribed or wildfire) of moderate fireline intensity (116 to 520 Btu/sec/ft), common in a clearcut slash burn.

Type of disturbance/depth: Fires provide the necessary heat to remove the duff layer, thus exposing the mineral soil, and to consume organic matter in the upper part of the soil.

Resource conditions: Depth—Soils that have a thin surface layer may lack the capacity to safely absorb the effects of fire. Areas that have a thin surface layer may be prone to slow recovery. *Slope*—Areas that have steep slopes are more likely to erode if the protective duff layer is removed. *Texture*—Soil texture and the content of coarse fragments affect soil erodibility and the recovery rate and productivity of vegetation. Medium-textured soils have a higher inherent available water capacity and thus are more likely to be cooler and have a higher potential productivity. Soils that are high in content of coarse fragments may transmit heat to a greater depth in a shorter amount of time. *Organic matter*—Soils that are less than 2 percent organic matter commonly are in harsh sites and are prone to slow recovery rates. Soils that are high in content of organic matter generally are more resistant to sheet and till erosion and have a higher available water capacity.

Limitation classes: A rating of *slight* indicates that little, if any, negative impact to the soil characteristics is expected from fires of moderate fireline intensity. A rating of *moderate* indicates that negative impacts to the soil characteristics may occur as a result of fires of moderate fireline intensity. A rating of *severe* indicates that negative impacts to the soil characteristics are expected as a result of fires of moderate fireline intensity.

Management implications: A rating of moderate or severe may indicate the need to consider burning in winter, using alternate lighting techniques, monitoring the fuel moisture content, yarding of unmerchantable material, eliminating prescribed burns, or using erosion control measures following burning.

Forestland Productivity

Table 8 summarizes the productivity of common trees on a specific soil. The potential productivity is calculated by using the site index, which is determined by taking height and age measurements on selected trees within stands of a given species. The procedures are given in the site index publications for ponderosa pine, grand fir, and Douglas fir (Meyer, 1961; Cochran, 1979a; Cochran, 1979b). The site index applies to fully stocked, even-aged stands. The highest timber yields can be expected from map units with the highest site indexes. Site index values are converted into estimated yields at various ages by using the appropriate yield tables. Trees are listed in the order of their general occurrence as observed on the map unit.

Ponderosa pine, Douglas fir, and white fir are the species preferred for wood production in the survey area. Commercial value, topographic position, survival and growth potential, and natural plant community are some of the factors that can influence the choice of adapted trees for reforestation.

Recreation

Recreation is very important to the economy of the survey area. Fishing for trout in the streams, rivers, lakes, and reservoirs is popular. Some reservoirs have a bass fishery. Bird watching is an increasingly popular activity, particularly in spring. Harney Basin and the Malheur National Wildlife Refuge host a tremendous number and variety of migratory waterfowl. The glaciated valleys and high mountain vistas of Steens Mountain attract many sightseers each year. The Diamond Craters Outstanding Natural Area is an area of relatively recent volcanic eruptions. The volcanic features are a result of activity as recent as 17,000 years ago. The varied and abundant wildlife in the survey area attract photographers, hunters, and tourists to the area.

The soils of the survey area are rated in table 9 according to limitations that affect their suitability for recreation. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that

affect the recreational uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

The ratings in the tables are based on restrictive soil features, such as wetness, slope, and texture of the surface layer. Susceptibility to flooding is considered. Not considered in the ratings, but important in evaluating a site, are the location and accessibility of the area, the size and shape of the area and its scenic quality, vegetation, access to water, potential water impoundment sites, and access to public sewer lines. The capacity of the soil to absorb septic tank effluent and the ability of the soil to support vegetation also are important. Soils that are subject to flooding are limited for recreational uses by the duration and intensity of flooding and the season when flooding occurs. In planning recreational facilities, onsite assessment of the height, duration, intensity, and frequency of flooding is essential.

The information in table 9 can be supplemented by other information in this survey, for example, interpretations for building site development, construction materials, sanitary facilities, and water management.

Camp areas require site preparation, such as shaping and leveling the tent and parking areas, stabilizing roads and intensively used areas, and installing sanitary facilities and utility lines. Camp areas are subject to heavy foot traffic and some vehicular traffic. The ratings are based on the soil properties that affect the ease of developing camp areas and the performance of the areas after development. Slope, stoniness, and depth to bedrock or a cemented pan are the main concerns affecting the development of camp areas. The soil properties that affect the performance of the areas after development are those that influence trafficability and promote the growth of vegetation, especially in heavily used areas. For good trafficability, the surface of camp areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Picnic areas are subject to heavy foot traffic. Most vehicular traffic is confined to access roads and parking areas. The ratings are based on the soil properties that affect the ease of developing picnic areas and that influence trafficability and the growth of vegetation after development. Slope and stoniness are the main concerns affecting the development of picnic areas. For good trafficability, the surface of picnic areas should absorb rainfall readily, remain firm under heavy foot traffic, and not be dusty when dry. The soil properties that influence trafficability are texture of the surface layer, depth to a water table, ponding, flooding, permeability, and large stones. The soil properties that affect the growth of plants are depth to bedrock or a cemented pan, permeability, and toxic substances in the soil.

Paths and trails for hiking and horseback riding should require little or no slope modification through cutting and filling. The ratings are based on the soil properties that affect trafficability and erodibility. These properties are stoniness, depth to a water table, ponding, flooding, slope, and texture of the surface layer.

Wildlife Habitat

Rod Blacker, U.S. Fish and Wildlife Service, helped to prepare this section.

The survey area supports a considerable variety of wildlife species. The large closed lake basins contain a large proportion of the wetlands in Oregon. These areas are on the Pacific Flyway for migrating waterfowl. The high desert valleys, plateaus, and mountains provide extensive habitat for many wildlife species.

The Jimgreen, Fury, Housefield, Homefield, and Opie soils provide shallow water marsh habitat. Migratory birds that use this habitat include swans, geese, ducks, eagles, grebes, terns, curlews and other shorebirds, and sandhill crane. Glossy ibis colonize the marshes while egrets, cormorants, and herons nest in the trees. Twelve species of ducks, western Canada goose, and the rare trumpeter swan regularly nest in the survey area, including in the Malheur National Wildlife Refuge. White pelican nest in areas of the Thenarrows, Duckclub, and Sandgap soils on the islands of Malheur Lake. The highly productive marshes produce large quantities of invertebrates that support fish and wildlife at higher food levels. These invertebrates and flying insects are feed for more than a dozen species of bats, including the big brown, little brown, Yuma myotis, hoary, pallid, and Townsend's big-eared bats.

In the valleys and basins, soils on stream terraces and low lake terraces provide habitat for riparian and upland wildlife species. Soils in these areas include those of the Fury, Ozamis, Skunkfarm, Roschene, Wenas, and Skidoosprings series. Besides the waterfowl, these meadow areas support large populations of rodents that are an important food source for many predatory birds and mammals. Prey species include long-tailed vole, white-footed mouse, kangaroo rat, Belding's ground squirrel, and shrews. Smaller populations of porcupines and chipmunks also use these areas. Fish inhabiting the perennial streams include the native redband trout, introduced carp, mountain whitefish, bridge-lipped sucker, sculpin, red-sided shiner, dace, Lahonton cutthroat trout, tui chub, and introduced rainbow trout. Brook trout, bass, and other fish are found in some of the reservoirs and lakes.

The plateaus, hills, and mountains provide important habitat for mule deer and pronghorn antelope. Feral horses also inhabit these areas. Elk live in the mountains and in some areas of the desert plateaus. Beaver, skunks, raccoons, muskrats, mink, long-tailed weasel, cottontail rabbit, jackrabbit, coyotes, and bobcats are common, and sightings of rare kit fox and cougar are rare. Typical soils in these areas are those of the Raz, Brace, Lonely, Pearlwise, Gaib, and Baconcamp series. Upland areas also support introduced species, such as ring-necked pheasant, Hungarian partridge, and chukar, along with native sage grouse, Mourning dove, and valley quail. Low sagebrush communities are important as leks, or mating areas, for sage grouse. Soils that support low sagebrush are those of the Anawalt, Ninemile, Carryback, Merlin, Sagehen, and Wagontire series.

The Rock outcrop and Rubble land in the survey area provide important habitat for golden eagle, red-tailed hawk, prairie falcon, great horned owl, long-eared owl, barn owl, chukar, and yellow-bellied marmot. Bighorn sheep inhabit the very steep, rocky escarpments of Steens Mountain.

Engineering

This section provides information for planning land uses related to urban development and to water management. Soils are rated for various uses, and the most limiting features are identified. Ratings are given for building site development, sanitary facilities, construction materials, and water management. The ratings are based on observed performance of the soils and on the data in the tables described under the heading "Soil Properties."

Information in this section is intended for land use planning, for evaluating land use alternatives, and for planning site investigations prior to design and construction. The information, however, has limitations. For example, estimates and other data generally apply only to that part of the soil between the surface and a depth of 5 to 7 feet. Because of the map scale, small areas of different soils may be included within the mapped areas of a specific soil.

The information is not site specific and does not eliminate the need for onsite investigation of the soils or for testing and analysis by personnel experienced in the design and construction of engineering works.

Government ordinances and regulations that restrict certain land uses or impose specific design criteria were not considered in preparing the information in this section. Local ordinances and regulations should be considered in planning, in site selection, and in design.

Soil properties, site features, and observed performance were considered in determining the ratings in this section. During the fieldwork for this soil survey, determinations were made about particle-size distribution, liquid limit, plasticity index, soil reaction, depth to bedrock, hardness of bedrock within 5 to 7 feet of the surface, soil wetness, depth to a water table, ponding, slope, likelihood of flooding, natural soil structure aggregation, and soil density. Data were collected about kinds of clay minerals, mineralogy of the sand and silt fractions, and the kinds of adsorbed cations. Estimates were made for erodibility, permeability, corrosivity, shrink-swell potential, available water capacity, and other behavioral characteristics affecting engineering uses.

This information can be used to evaluate the potential of areas for residential, commercial, industrial, and recreational uses; make preliminary estimates of construction conditions; evaluate alternative routes for roads, streets, highways, pipelines, and underground cables; evaluate alternative sites for sanitary landfills, septic tank absorption fields, and sewage lagoons; plan detailed onsite investigations of soils and geology; locate potential sources of gravel, sand, earthfill, and topsoil; plan drainage systems, irrigation systems, ponds, terraces, and other structures for soil and water conservation; and predict performance of proposed small structures and pavements by comparing the performance of existing similar structures on the same or similar soils.

The information in the tables, along with the soil maps, the soil descriptions, and other data provided in this survey, can be used to make additional interpretations.

Some of the terms used in this soil survey have a special meaning in soil science and are defined in the Glossary.

Building Site Development

Soil properties influence the development of building sites, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Table 10 shows the degree and kind of soil limitations that affect dwellings with basements, local roads and streets, and shallow excavations.

The ratings in the tables are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect building site development. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Dwellings are single-family houses of three stories or less. For dwellings with basements, the foundation is assumed to consist of spread footings of reinforced concrete built on undisturbed soil at a depth of about 7 feet. The ratings for dwellings are based on the soil properties that affect the capacity of the soil to support a load without movement and on the properties that affect excavation and construction costs. The properties that affect the load-supporting capacity include depth to a water table, ponding, flooding, subsidence, linear extensibility (shrink-swell potential), and compressibility. Compressibility is inferred from the Unified classification. The properties that affect the ease and amount of excavation include depth to a water table, ponding, flooding, slope, depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, and the amount and size of rock fragments.

Local roads and streets have an all-weather surface and carry automobile and light truck traffic all year. They have a subgrade of cut or fill soil material; a base of gravel, crushed rock, or soil material stabilized by lime or cement; and a surface of flexible material (asphalt), rigid material (concrete), or gravel with a binder. The ratings are based on the soil properties that affect the ease of excavation and grading and the traffic-supporting capacity. The properties that affect the ease of excavation and grading are depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, depth to a water table, ponding, flooding, the amount of large stones, and slope. The properties that affect the traffic-supporting capacity are soil strength (as inferred from the AASHTO group index number), subsidence, linear extensibility (shrink-swell potential), the potential for frost action, depth to a water table, and ponding.

Shallow excavations are trenches or holes dug to a maximum depth of 5 or 6 feet for graves, utility lines, open ditches, or other purposes. The ratings are based on the soil properties that influence the ease of digging and the resistance to sloughing. Depth to bedrock or a cemented pan, hardness of bedrock or a cemented pan, the amount of large stones, and dense layers influence the ease of digging, filling, and compacting. Depth to the seasonal high water table, flooding, and ponding may restrict the period when excavations can be made. Slope influences the ease of using machinery. Soil texture, depth to the water table, and linear extensibility (shrink-swell potential) influence the resistance to sloughing.

Sanitary Facilities

Table 11 shows the degree and kind of soil limitations that affect septic tank absorption fields and trench sanitary landfills. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Septic tank absorption fields are areas in which effluent from a septic tank is

distributed into the soil through subsurface tiles or perforated pipe. Only that part of the soil between depths of 24 and 60 inches is evaluated. The ratings are based on the soil properties that affect absorption of the effluent, construction and maintenance of the system, and public health. Permeability, depth to a water table, ponding, depth to bedrock or a cemented pan, and flooding affect absorption of the effluent. Stones and boulders, ice, and bedrock or a cemented pan interfere with installation. Subsidence interferes with installation and maintenance. Excessive slope may cause lateral seepage and surfacing of the effluent in downslope areas.

Some soils are underlain by loose sand and gravel or fractured bedrock at a depth of less than 4 feet below the distribution lines. In these soils the absorption field may not adequately filter the effluent, particularly when the system is new. As a result, the ground water may become contaminated.

A *trench sanitary landfill* is an area where solid waste is placed in successive layers in an excavated trench. The waste is spread, compacted, and covered daily with a thin layer of soil excavated at the site. When the trench is full, a final cover of soil material at least 2 feet thick is placed over the landfill. The ratings in the table are based on the soil properties that affect the risk of pollution, the ease of excavation, trafficability, and revegetation. These properties include permeability, depth to bedrock or a cemented pan, depth to a water table, ponding, slope, flooding, texture, stones and boulders, highly organic layers, soil reaction, and content of salts and sodium. Unless otherwise stated, the ratings apply only to that part of the soil within a depth of about 6 feet. For deeper trenches, onsite investigation may be needed.

Hard, nonrippable bedrock, creviced bedrock, or highly permeable strata in or directly below the proposed trench bottom can affect the ease of excavation and the hazard of ground-water pollution. Slope affects construction of the trenches and the movement of surface water around the landfill. It also affects the construction and performance of roads in areas of the landfill.

Soil texture and consistence affect the ease with which the trench is dug and the ease with which the soil can be used as daily or final cover. They determine the workability of the soil when dry and when wet. Soils that are plastic and sticky when wet are difficult to excavate, grade, or compact and are difficult to place as a uniformly thick cover over a layer of refuse.

The soil material used as the final cover for a trench landfill should be suitable for plants. It should not have excess sodium or salts and should not be too acid. The surface layer generally has the best workability, the highest content of organic matter, and the best potential for plants. Material from the surface layer should be stockpiled for use as the final cover.

Construction Materials

Table 12 gives information about the soils as potential sources of gravel, sand, and topsoil. Normal compaction, minor processing, and other standard construction practices are assumed.

Sand and *gravel* are natural aggregates suitable for commercial use with a minimum of processing. They are used in many kinds of construction. Specifications for each use vary widely. In table 12, only the likelihood of finding material in suitable quantity is evaluated. The suitability of the material for specific purposes is not evaluated, nor are factors that affect excavation of the material. The properties used to evaluate the soil as a source of sand or gravel are gradation of grain sizes (as indicated by the Unified classification of the soil), the thickness of suitable material, and the content of rock fragments. If the bottom layer of the soil contains sand or gravel, the soil is considered a likely source regardless of thickness. The assumption is that the sand or gravel layer below the depth of observation exceeds the minimum thickness.

The soils are rated *good, fair,* or *poor* as potential sources of sand and gravel. A

rating of *good* or *fair* means that the source material is likely to be in or below the soil. The bottom layer and the thickest layer of the soils are assigned numerical ratings. These ratings indicate the likelihood that the layer is a source of sand or gravel. The numbers 0.00 to 0.07 indicate that the layer is a poor source. The numbers 0.75 to 1.00 indicate that the layer is a good source. A number between 0.08 and 0.74 indicates the degree to which the layer is a likely source.

The soils are rated *good, fair,* or *poor* as a potential source of topsoil. The features that limit the soils as a source are specified in the tables. The numerical ratings given after the specified features indicate the degree to which the features limit the soils as a source topsoil. The lower the number, the greater the limitation.

Topsoil is used to cover an area so that vegetation can be established and maintained. The upper 40 inches of a soil is evaluated for use as topsoil. Also evaluated is the reclamation potential of the borrow area. The ratings are based on the soil properties that affect plant growth; the ease of excavating, loading, and spreading the material; and reclamation of the borrow area. Toxic substances, soil reaction, and the properties that are inferred from soil texture, such as available water capacity and fertility, affect plant growth. The ease of excavating, loading, and spreading is affected by rock fragments, slope, depth to a water table, soil texture, and thickness of suitable material. Reclamation of the borrow area is affected by slope, depth to a water table, rock fragments, depth to bedrock or a cemented pan, and toxic material.

The surface layer of most soils is generally preferred for topsoil because of its organic matter content. Organic matter greatly increases the absorption and retention of moisture and nutrients for plant growth.

Water Management

Table 13 gives information on the soil properties and site features that affect water management. The degree and kind of soil limitations are given for pond reservoir areas; embankments, dikes, and levees; and aquifer-fed excavated ponds. The ratings are both verbal and numerical. Rating class terms indicate the extent to which the soils are limited by all of the soil features that affect these uses. *Not limited* indicates that the soil has features that are very favorable for the specified use. Good performance and very low maintenance can be expected. *Somewhat limited* indicates that the soil has features that are moderately favorable for the specified use. The limitations can be overcome or minimized by special planning, design, or installation. Fair performance and moderate maintenance can be expected. *Very limited* indicates that the soil has one or more features that are unfavorable for the specified use. The limitations generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures. Poor performance and high maintenance can be expected.

Numerical ratings in the tables indicate the severity of individual limitations. The ratings are shown as decimal fractions ranging from 0.01 to 1.00. They indicate gradations between the point at which a soil feature has the greatest negative impact on the use (1.00) and the point at which the soil feature is not a limitation (0.00).

Pond reservoir areas hold water behind a dam or embankment. Soils best suited to this use have low seepage potential in the upper 60 inches. The seepage potential is determined by the permeability of the soil and the depth to fractured bedrock or other permeable material. Excessive slope can affect the storage capacity of the reservoir area.

Embankments, dikes, and levees are raised structures of soil material, generally less than 20 feet high, constructed to impound water or to protect land against overflow. Embankments that have zoned construction (core and shell) are not considered. In this table, the soils are rated as a source of material for embankment fill. The ratings apply to the soil material below the surface layer to a depth of about 5

feet. It is assumed that soil layers will be uniformly mixed and compacted during construction.

The ratings do not indicate the ability of the natural soil to support an embankment. Soil properties to a depth even greater than the height of the embankment can affect performance and safety of the embankment. Generally, deeper onsite investigation is needed to determine these properties.

Soil material in embankments must be resistant to seepage, piping, and erosion and have favorable compaction characteristics. Unfavorable features include less than 5 feet of suitable material and a high content of stones or boulders, organic matter, or salts or sodium. A high water table affects the amount of usable material. It also affects trafficability.

Aquifer-fed excavated ponds are pits or dugouts that extend to a ground-water aquifer or to a depth below a permanent water table. Excluded are ponds that are fed only by surface runoff and embankment ponds that impound water 3 feet or more above the original surface. Excavated ponds are affected by depth to a permanent water table, permeability of the aquifer, and quality of the water as inferred from the salinity of the soil. Depth to bedrock and the content of large stones affect the ease of excavation.

Soil Properties

Data relating to soil properties are collected during the course of the soil survey.

Soil properties are ascertained by field examination of the soils. During the survey, many shallow borings are made and examined to identify and classify the soils and to delineate them on the soil maps. Samples are taken from some typical profiles and tested in the laboratory.

Estimates of soil properties are based on field examinations, on laboratory tests of samples from the survey area, and on laboratory tests of samples of similar soils in nearby areas (USDA, 1996). Tests verify field observations, verify properties that cannot be estimated accurately by field observation, and help to characterize key soils.

The estimates of soil properties are shown in tables. They include engineering index properties, physical and chemical properties, and pertinent soil and water features.

Engineering Index Properties

Table 14 gives the engineering classifications and the range of index properties for the layers of each soil in the survey area.

Depth to the upper and lower boundaries of each layer is indicated.

Texture is given in the standard terms used by the U.S. Department of Agriculture. These terms are defined according to percentages of sand, silt, and clay in the fraction of the soil that is less than 2 millimeters in diameter. “Loam,” for example, is soil that is 7 to 27 percent clay, 28 to 50 percent silt, and less than 52 percent sand. If the content of particles coarser than sand is 15 percent or more, an appropriate modifier is added, for example, “gravelly.” Textural terms are defined in the Glossary.

Classification of the soils is determined according to the Unified soil classification system (ASTM, 2001) and the system adopted by the American Association of State Highway and Transportation Officials (AASHTO, 2000).

The Unified system classifies soils according to properties that affect their use as construction material. Soils are classified according to particle-size distribution of the fraction less than 3 inches in diameter and according to plasticity index, liquid limit, and organic matter content. Sandy and gravelly soils are identified as GW, GP, GM, GC, SW, SP, SM, and SC; silty and clayey soils as ML, CL, OL, MH, CH, and OH; and highly organic soils as PT. Soils exhibiting engineering properties of two groups can have a dual classification, for example, CL-ML.

The AASHTO system classifies soils according to those properties that affect roadway construction and maintenance. In this system, the fraction of a mineral soil that is less than 3 inches in diameter is classified in one of seven groups from A-1 through A-7 on the basis of particle-size distribution, liquid limit, and plasticity index. Soils in group A-1 are coarse grained and low in content of fines (silt and clay). At the other extreme, soils in group A-7 are fine grained. Highly organic soils are classified in group A-8 on the basis of visual inspection.

Rock fragments larger than 10 inches in diameter and 3 to 10 inches in diameter are indicated as a percentage of the total soil on a dry-weight basis. The percentages

are estimates determined mainly by converting volume percentage in the field to weight percentage.

Percentage (of soil particles) passing designated sieves is the percentage of the soil fraction less than 3 inches in diameter based on an ovendry weight. The sieves, numbers 4, 10, 40, and 200 (USA Standard Series), have openings of 4.76, 2.00, 0.420, and 0.074 millimeters, respectively. Estimates are based on laboratory tests of soils sampled in the survey area and in nearby areas and on estimates made in the field.

Liquid limit and *plasticity index* (Atterberg limits) indicate the plasticity characteristics of a soil. The estimates are based on test data from the survey area or from nearby areas and on field examination.

The estimates of particle-size distribution, liquid limit, and plasticity index are generally rounded to the nearest 5 percent. Thus, if the ranges of gradation and Atterberg limits extend a marginal amount (1 or 2 percentage points) across classification boundaries, the classification in the marginal zone is generally omitted in the table.

Physical Properties

Table 15 shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In table 15, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, permeability, plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at $^1/_3$- or $^1/_{10}$-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Permeability (K_{sat}) refers to the ability of a soil to transmit water or air. The term "permeability," as used in soil surveys, indicates saturated hydraulic conductivity (K_{sat}). The estimates in the table indicate the rate of water movement, in inches per

hour, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Permeability is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. Volume change is influenced by the amount and type of clay minerals in the soil.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In table 15, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in table 15 as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of several factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and permeability. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible.

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter,

and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Chemical Properties

Table 16 shows estimates of some chemical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Cation-exchange capacity is the total amount of extractable bases that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. Soils having a low cation-exchange capacity hold fewer cations and may require more frequent applications of fertilizer than soils having a high cation-exchange capacity. The ability to retain cations reduces the hazard of ground-water pollution.

Soil reaction is a measure of acidity or alkalinity. The pH of each soil horizon is based on many field tests. For many soils, values have been verified by laboratory analyses. Soil reaction is important in selecting crops and other plants, in evaluating soil amendments for fertility and stabilization, and in determining the risk of corrosion.

Calcium carbonate equivalent is the percent of carbonates, by weight, in the fraction of the soil less than 2 millimeters in size. The availability of plant nutrients is influenced by the amount of carbonates in the soil. Incorporating nitrogen fertilizer into calcareous soils helps to prevent nitrite accumulation and ammonium-N volatilization.

Salinity is a measure of soluble salts in the soil at saturation. It is expressed as the electrical conductivity of the saturation extract, in millimhos per centimeter at 25 degrees C. Estimates are based on field and laboratory measurements at representative sites of nonirrigated soils. The salinity of irrigated soils is affected by the quality of the irrigation water and by the frequency of water application. Hence, the salinity of soils in individual fields can differ greatly from the value given in the table. Salinity affects the suitability of a soil for crop production, the stability of soil if used as construction material, and the potential of the soil to corrode metal and concrete.

Sodium adsorption ratio (SAR) is a measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration. Soils that have SAR values of 13 or more may be characterized by an increased dispersion of organic matter and clay particles, reduced permeability and aeration, and a general degradation of soil structure.

Water Features

Table 17 gives estimates of various water features. The estimates are used in land use planning that involves engineering considerations.

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These

consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The *months* in the table indicate the portion of the year in which the feature is most likely to be a concern.

Water table refers to a saturated zone in the soil. Table 17 indicates, by month, depth to the top (*upper limit*) and base (*lower limit*) of the saturated zone in most years. Estimates of the upper and lower limits are based mainly on observations of the water table at selected sites and on evidence of a saturated zone, namely grayish colors or mottles (redoximorphic features) in the soil. A saturated zone that lasts for less than a month is not considered a water table.

Ponding is standing water in a closed depression. Unless a drainage system is installed, the water is removed only by percolation, transpiration, or evaporation. Table 17 indicates *surface water depth* and the *duration* and *frequency* of ponding. Duration is expressed as *very brief* if less than 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, rare, occasional, and frequent. *None* means that ponding is not probable; *rare* that it is unlikely but possible under unusual weather conditions (the chance of ponding is nearly 0 percent to 5 percent in any year); *occasional* that it occurs, on the average, once or less in 2 years (the chance of ponding is 5 to 50 percent in any year); and *frequent* that it occurs, on the average, more than once in 2 years (the chance of ponding is more than 50 percent in any year).

Flooding is the temporary inundation of an area caused by overflowing streams, by runoff from adjacent slopes, or by tides. Water standing for short periods after rainfall or snowmelt is not considered flooding, and water standing in swamps and marshes is considered ponding rather than flooding.

Duration and *frequency* are estimated. Duration is expressed as *extremely brief* if 0.1 hour to 4 hours, *very brief* if 4 hours to 2 days, *brief* if 2 to 7 days, *long* if 7 to 30 days, and *very long* if more than 30 days. Frequency is expressed as none, very rare, rare, occasional, frequent, and very frequent. *None* means that flooding is not probable; *very rare* that it is very unlikely but possible under extremely unusual weather conditions (the chance of flooding is less than 1 percent in any year); *rare* that it is unlikely but possible under unusual weather conditions (the chance of flooding is 1 to 5 percent in any year); *occasional* that it occurs infrequently under normal weather conditions (the chance of flooding is 5 to 50 percent in any year); *frequent* that it is likely to occur often under normal weather conditions (the chance of flooding is more than 50 percent in any year but is less than 50 percent in all months in any year); and *very frequent* that it is likely to occur very often under normal weather conditions (the chance of flooding is more than 50 percent in all months of any year).

The information is based on evidence in the soil profile, namely thin strata of gravel, sand, silt, or clay deposited by floodwater; irregular decrease in organic matter content with increasing depth; and little or no horizon development.

Also considered are local information about the extent and levels of flooding and the relation of each soil on the landscape to historic floods. Information on the extent

of flooding based on soil data is less specific than that provided by detailed engineering surveys that delineate flood-prone areas at specific flood frequency levels.

Soil Features

Table 18 gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, permeability, content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low, moderate,* or *high,* is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low, moderate,* or *high*. It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Classification of the Soils

The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1975). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series. Classification is based on soil properties observed in the field or inferred from those observations or from laboratory measurements. Table 19 shows the classification of the soils in the survey area. The categories are defined in the following paragraphs.

ORDER. Eleven soil orders are recognized. The differences among orders reflect the dominant soil-forming processes and the degree of soil formation. Each order is identified by a word ending in *sol*. An example is Mollisol.

SUBORDER. Each order is divided into suborders primarily on the basis of properties that influence soil genesis and are important to plant growth or properties that reflect the most important variables within the orders. The last syllable in the name of a suborder indicates the order. An example is Xeroll (*Xer*, meaning dry, plus *oll*, from Mollisol).

GREAT GROUP. Each suborder is divided into great groups on the basis of close similarities in kind, arrangement, and degree of development of pedogenic horizons; soil moisture and temperature regimes; type of saturation; and base status. Each great group is identified by the name of a suborder and by a prefix that indicates a property of the soil. An example is Argixerolls (*Argi*, meaning white clay, plus *xeroll*, the suborder of the Mollisols that has a xeric moisture regime).

SUBGROUP. Each great group has a typic subgroup. Other subgroups are intergrades or extragrades. The typic subgroup is the central concept of the great group; it is not necessarily the most extensive. Intergrades are transitions to other orders, suborders, or great groups. Extragrades have some properties that are not representative of the great group but do not indicate transitions to any other taxonomic class. Each subgroup is identified by one or more adjectives preceding the name of the great group. The adjective *Typic* identifies the subgroup that typifies the great group. An example is Typic Argixerolls.

FAMILY. Families are established within a subgroup on the basis of physical and chemical properties and other characteristics that affect management. Generally, the properties are those of horizons below plow depth where there is much biological activity. Among the properties and characteristics considered are particle-size class, mineralogy class, cation-exchange activity class, soil temperature regime, soil depth, and reaction class. A family name consists of the name of a subgroup preceded by terms that indicate soil properties. An example is fine, montmorillonitic, frigid Typic Argixerolls.

SERIES. The series consists of soils within a family that have horizons similar in color, texture, structure, reaction, consistence, mineral and chemical composition, and arrangement in the profile.

Taxonomic Units and Their Morphology

In this section, each taxonomic unit recognized in the survey area is described. Characteristics of the soil and the material in which it formed are identified for each unit. A pedon, a small three-dimensional area of soil, that is typical of the unit in the

survey area is described. The detailed description of each soil horizon follows standards in the “Soil Survey Manual” (Soil Survey Division Staff, 1993). Many of the technical terms used in the descriptions are defined in “Soil Taxonomy” (Soil Survey Staff, 1975) and in “Keys to Soil Taxonomy” (Soil Survey Staff, 1994). Following the pedon description is the range of important characteristics of the soils in the unit.

Actem Series

The Actem series consists of soils that are shallow to an indurated duripan and are well drained. The soils formed in old alluvium and colluvium over basalt and welded tuff. They are on plateaus and hills. Slope is 2 to 20 percent. Elevation is 4,200 to 6,000 feet. The mean annual precipitation is 8 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid, shallow Xeric Argidurids

Typical pedon of Actem cobbly loam, 2 to 20 percent slopes, about 2,500 feet south and 1,800 feet west of the northeast corner of sec. 25, T. 38 S., R. 30 E.; Acty Mountain NW quadrangle.

A—0 to 2 inches; light gray (10YR 7/2) cobbly loam, brown (10YR 4/3) moist; weak medium platy structure; hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; many fine and medium vesicular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 7.3); clear wavy boundary.

Bt1—2 to 7 inches; brown (10YR 5/3) clay, yellowish brown (10YR 5/4) moist; strong coarse subangular blocky structure; hard, firm, very sticky and very plastic; common fine and medium roots; many fine and medium irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); clear wavy boundary.

Bt2—7 to 15 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; many fine irregular pores; common distinct clay films on faces of peds; strongly effervescent with disseminated carbonates; slightly alkaline (pH 7.5); clear wavy boundary.

Bkqm—15 to 20 inches; very pale brown (10YR 8/3) platy indurated duripan, pale brown (10YR 6/3) moist; massive; very rigid; few fine roots along plates; strongly effervescent with disseminated carbonates; abrupt smooth boundary.

2R—20 inches; basalt.

Thickness of the solum and depth to the duripan are 12 to 20 inches. Depth to bedrock is 20 to 30 inches. Depth to carbonates is 5 to 10 inches. Depth to the clay layer is 2 to 10 inches.

The A horizon has value of 6 or 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 moist or dry. It is cobbly loam or extremely cobbly loam with 20 to 27 percent clay. The content of clay in the Bt horizon is 10 to 20 percent more than that of the A horizon.

The Bt horizon has hue of 7.5YR or 10YR. It is clay, clay loam, gravelly clay, gravelly clay loam, or cobbly clay loam. It is 35 to 45 percent clay and 0 to 35 percent gravel and cobbles. It is neutral or slightly alkaline.

The Bkqm horizon is 4 to 10 inches thick.

Alvodest Series

The Alvodest series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 3 percent.

Elevation is 4,000 to 4,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Sodic Aquicambids

Typical pedon of Alvodest silty clay loam, 0 to 3 percent slopes, about 1,900 feet south and 2,100 feet west of the northeast corner of sec. 21, T. 38 S., R. 35 E.; Borax Lake quadrangle.

Aknz1—0 to 2 inches; light gray (10YR 7/2) silty clay loam, brown (10YR 4/3) moist; strong medium and fine angular blocky structure; hard, friable, moderately sticky and moderately plastic; many fine and medium roots; many very fine, fine, and medium vesicular and irregular pores and few coarse vesicular pores; strongly effervescent with disseminated carbonates; 9 percent calcium carbonate equivalent; electrical conductivity is 40 millimhos per centimeter; sodium adsorption ratio is 990; very strongly alkaline (pH 9.7); abrupt smooth boundary.

Aknz2—2 to 6 inches; light brownish gray (10YR 6/2) silty clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, very friable, moderately sticky and moderately plastic; many fine and medium roots; many very fine, fine, and medium irregular and vesicular pores; strongly effervescent with disseminated carbonates; 9 percent calcium carbonate equivalent; electrical conductivity is 40 millimhos per centimeter; sodium adsorption ratio is 990; very strongly alkaline (pH 9.5); clear smooth boundary.

Bknz1—6 to 15 inches; grayish brown (10YR 5/2) silty clay, dark brown (10YR 3/3) moist; moderate medium angular blocky structure; hard, friable, moderately sticky and moderately plastic; many fine and medium roots; many very fine and fine and common medium irregular pores; few pressure faces on faces of peds; strongly effervescent with disseminated carbonates; 9 percent calcium carbonate equivalent; electrical conductivity is 27 millimhos per centimeter; sodium adsorption ratio is 685; very strongly alkaline (pH 9.8); clear smooth boundary.

Bknz2—15 to 21 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium angular blocky structure; hard, friable, moderately sticky and slightly plastic; common fine and few medium roots; many very fine and fine and common medium irregular pores; common pressure faces on faces of peds; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.8); gradual smooth boundary.

Bknz3—21 to 42 inches; grayish brown (10YR 5/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; many very fine and fine and common medium irregular pores; few pressure faces on faces of peds; strongly effervescent with disseminated carbonates; 8 percent calcium carbonate equivalent; electrical conductivity is 14 millimhos per centimeter; sodium adsorption ratio is 70; very strongly alkaline (pH 9.9); gradual smooth boundary.

Bknz4—42 to 53 inches; light brownish gray (10YR 6/2) silty clay, very dark grayish brown (10YR 3/2) moist; moderate medium prismatic structure; hard, firm, moderately sticky and moderately plastic; few fine roots; many very fine and fine irregular pores; few pressure faces on faces of peds; strongly effervescent with disseminated carbonates; 16 percent calcium carbonate equivalent; electrical conductivity is 26 millimhos per centimeter; sodium adsorption ratio is 795; very strongly alkaline (pH 10.0); gradual smooth boundary.

Ckz—53 to 78 inches; light gray (10YR 7/2) silty clay, brown (10YR 5/3) moist; massive; hard, firm, moderately sticky and moderately plastic; many very fine and fine irregular pores; strongly effervescent with disseminated carbonates; masses of salt on faces of peds; very strongly alkaline (pH 9.1).

Bedrock is at a depth of more than 60 inches. Calcium carbonate is at the surface to a depth of 10 inches. Frequent ponding occurs in winter and spring. A high water table is present in winter and spring. The particle-size control section averages 40 to 60 percent clay.

The Aknz horizon is 30 to 40 percent clay. The calcium carbonate equivalent is 5 to 10 percent. The sodium adsorption ratio is 800 to 999. Electrical conductivity is 16 to 32 millimhos per centimeter.

The Bknz horizon is silty clay, clay, or silty clay loam with 35 to 60 percent clay. The calcium carbonate equivalent is 5 to 15 percent. Electrical conductivity is 14 to 32 millimhos per centimeter. The sodium adsorption ratio is 70 to 700.

The Ckz horizon is loam, silty clay loam, or silty clay with 25 to 50 percent clay. The calcium carbonate equivalent is 5 to 15 percent. Electrical conductivity is 12 to 32 millimhos per centimeter. The sodium adsorption ratio is 70 to 700.

Alyan Series

The Alyan series consists of moderately deep, well drained soils that formed in residuum derived from welded tuff, rhyolite, and ashflow tuff. The soils are on plateaus and hills. Slope is 3 to 15 percent. Elevation is 4,200 to 5,200 feet. The mean annual precipitation is 11 to 13 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Aridic Argixerolls

Typical pedon of Alyan gravelly sandy loam, 3 to 15 percent slopes, about 600 feet south and 900 feet west of the northeast corner of sec. 32, T. 23 S., R. 29 E.; Sagehen Hill quadrangle.

A1—0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine, fine, and medium irregular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear smooth boundary.

A2—2 to 10 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine and coarse, common medium, and many fine irregular pores; 10 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

Bt1—10 to 17 inches; pale brown (10YR 6/3) cobbly clay loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and medium and common fine roots; few very fine and common fine and medium irregular pores; common distinct clay films on faces of peds; 5 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—17 to 24 inches; light yellowish brown (10YR 6/4) cobbly clay, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few very fine, fine, and medium irregular pores; common distinct and few prominent clay films on faces of peds; 5 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

R—24 inches; fractured ashflow tuff; fractures about 5 to 10 inches apart; horizontal bedding.

The mollic epipedon is 8 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 10 to 30

percent rock fragments, mainly cobbles, and 35 to 50 percent clay. The profile is neutral or slightly alkaline.

The A1 horizon is 15 to 35 percent rock fragments and 15 to 20 percent clay.

The A2 horizon is 5 to 10 percent rock fragments and 20 to 27 percent clay.

The Bt horizon is clay, gravelly clay, cobbly clay loam, or cobbly clay. It is 10 to 30 percent rock fragments and 35 to 55 percent clay.

Anatone Series

The Anatone series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt, andesite, rhyolite, and welded tuff. The soils are on hills and mountains. Slope is 2 to 60 percent. Elevation is 4,000 to 6,000 feet. The mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Lithic Haploxerolls

Typical pedon of Anatone extremely gravelly loam in an area of Anatone-Egyptcreek-Rock outcrop association, 20 to 50 percent slopes; about 660 feet north and 1,980 feet west of the southeast corner of sec. 20, T. 21 S., R. 27 E.; Dry Mountain quadrangle.

A1—0 to 3 inches; grayish brown (10YR 5/2) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and fine and many medium discontinuous irregular pores; 45 percent gravel, 15 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—3 to 8 inches; brown (10YR 5/3) extremely gravelly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine, fine, and medium discontinuous irregular pores; 45 percent gravel and 15 percent cobbles; neutral (pH 7.2); gradual wavy boundary.

Bw—8 to 14 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, moderately sticky and moderately plastic; few very fine, medium, and coarse roots and common fine roots; common very fine and fine and few medium discontinuous irregular pores; 50 percent gravel; neutral (pH 7.3); abrupt smooth boundary.

R—14 inches; fractured welded tuff.

The mollic epipedon is 7 to 18 inches thick. Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly gravel, and 18 to 30 percent clay. The profile is slightly acid or neutral. A thin Cr horizon is above the R horizon in some pedons.

The A horizon is 5 to 9 inches thick. It is very gravelly loam, extremely gravelly loam, very stony loam, or stony loam. It is 35 to 80 percent rock fragments and 18 to 27 percent clay.

The Bw horizon is very gravelly loam, very gravelly sandy clay loam, or very cobbly clay loam. It is 35 to 60 percent rock fragments and 18 to 30 percent clay.

Anawalt Series

The Anawalt series consists of shallow, well drained soils that formed in residuum and colluvium derived from basalt, andesite, and welded tuff. The soils are on

plateaus and hills. Slope is 0 to 30 percent. Elevation is 4,300 to 6,200 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid Lithic Xeric Haplargids

Typical pedon of Anawalt gravelly clay loam, 0 to 12 percent slopes, about 1,000 feet north and 700 feet west of the southeast corner of sec. 2, T. 41 S., R. 29 E.; Sagehen Flats quadrangle.

A1—0 to 2 inches; light brownish gray (10YR 6/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, friable, moderately sticky and moderately plastic; many fine, common medium, and few coarse roots; many very fine and fine and common medium irregular pores; 15 percent gravel; neutral (pH 6.6); clear wavy boundary.

A2—2 to 11 inches; light brownish gray (10YR 6/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, friable, moderately sticky and moderately plastic; many fine, common medium, and few coarse roots; many very fine and fine and common medium irregular pores; 5 percent gravel; neutral (pH 6.6); clear wavy boundary.

Bt—11 to 16 inches; brownish yellow (10YR 6/6) clay, dark yellowish brown (10YR 4/6) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, firm, very sticky and very plastic; few fine and medium roots; common fine irregular pores; many prominent clay films on faces of peds; neutral (pH 7.2); abrupt wavy boundary.

2R—16 inches; fractured welded tuff.

Thickness of the solum and depth to bedrock are 12 to 20 inches. Depth to the claypan is 4 to 11 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel and cobbles, and 40 to 60 percent clay. The profile is neutral or slightly alkaline. An intermittent thin Btq horizon is in some pedons.

The A1 horizon is gravelly loam or gravelly clay loam. It is 15 to 25 percent rock fragments and 25 to 35 percent clay.

The A2 horizon is loam or clay loam. It is 5 to 15 percent rock fragments and 20 to 35 percent clay.

The Bt horizon has hue of 7.5YR or 10YR. It is clay or cobbly clay. It is 5 to 35 percent rock fragments and 40 to 60 percent clay.

Arcia Series

The Arcia series consists of moderately deep, well drained soils that formed in residuum and alluvium derived from basalt and welded tuff. The soils are on hills and plateaus. Slope is 2 to 30 percent. Elevation is 4,000 to 6,000 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Pachic Argixerolls

Typical pedon of Arcia extremely stony loam in an area of Doyn-Arcia association, 2 to 30 percent slopes; about 600 feet south and 200 feet west of the northeast corner of sec. 27, T. 21 S., R. 34 E.; Stinkingwater Pass quadrangle.

A1—0 to 4 inches; grayish brown (10YR 5/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; weak thick platy structure; soft, very friable, nonsticky and nonplastic; common very fine and few fine roots; few very fine vesicular

pores; 35 percent gravel, 30 percent cobbles, and 25 percent stones; slightly alkaline (pH 7.6); gradual smooth boundary.

A2—4 to 13 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, friable, slightly sticky and nonplastic; few fine and medium roots; few fine irregular pores; 30 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bt—13 to 23 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 3/3) moist; strong medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few medium roots; few very fine irregular pores; common distinct clay films on faces of peds; 30 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

R—23 inches; basalt.

The mollic epipedon is 20 to 30 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel, and 35 to 50 percent clay. The profile is neutral or slightly alkaline.

The A1 horizon is 60 to 90 percent rock fragments and 15 to 27 percent clay.

The A2 horizon is gravelly loam, very gravelly loam, or gravelly clay loam. It is 15 to 40 percent rock fragments and 20 to 30 percent clay.

The Bt horizon is clay loam, clay, or gravelly clay. It is 5 to 30 percent rock fragments and 35 to 50 percent clay.

Ateron Series

The Ateron series consists of shallow, well drained soils that formed in residuum and colluvium derived from welded tuff, basalt, and andesite. The soils are on hills, mountains, and plateaus. Slope is 2 to 60 percent. Elevation is 3,900 to 5,800 feet. The mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls

Typical pedon of Ateron extremely stony silt loam in an area of Rubble land-Nuss-Ateron association, 20 to 60 percent slopes; about 1,200 feet north and 1,900 feet east of the southwest corner of sec. 6, T. 23 S., R. 35 E.; Coleman Mountain quadrangle.

A—0 to 5 inches; dark grayish brown (10YR 4/2) extremely stony silt loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular and tubular pores; 15 percent gravel, 25 percent cobbles, and 30 percent stones; neutral (pH 6.8); clear smooth boundary.

BAt—5 to 12 inches; grayish brown (10YR 5/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and fine irregular and tubular pores; few faint clay films on faces of peds; 10 percent gravel, 35 percent cobbles, and 10 percent stones; neutral (pH 7.0); clear smooth boundary.

Bt—12 to 18 inches; brown (10YR 5/3) extremely stony clay, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and fine irregular and tubular pores; common faint clay films on faces of peds;

10 percent gravel, 35 percent cobbles, and 20 percent stones; neutral (pH 7.0); abrupt irregular boundary.
R—18 inches; highly fractured basalt.

The mollic epipedon is 7 to 14 inches thick. Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly cobbles and stones, and 40 to 50 percent clay.

The A horizon is gravelly loam, very gravelly loam, very cobbly loam, very stony loam, or extremely stony silt loam. It is 15 to 70 percent rock fragments and 20 to 27 percent clay.

The Bt horizon is very cobbly clay, extremely stony clay, or very stony clay. It is 50 to 70 percent rock fragments and 40 to 50 percent clay.

Atlow Series

The Atlow series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt, rhyolite, andesite, and welded tuff. The soils are on hills. Slope is 2 to 50 percent. Elevation is 4,200 to 5,300 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids

Typical pedon of Atlow very stony loam in an area of Skedaddle-Atlow-Rock outcrop complex, 5 to 30 percent slopes; about 1,400 feet south and 800 feet east of the northwest corner of sec. 14, T. 38 S., R. 36 E.; Red Lookout Butte quadrangle.

A—0 to 3 inches; light brownish gray (10YR 6/2) very stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine roots; many fine vesicular pores; 20 percent gravel, 20 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.
Bt1—3 to 7 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine roots; common fine irregular pores; few faint clay films on faces of peds; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); gradual wavy boundary.
Bt2—7 to 11 inches; brown (10YR 5/3) very cobbly clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine roots; common fine irregular pores; few faint clay films on faces of peds; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); abrupt irregular boundary.
R—11 inches; basalt.

Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly gravel and cobbles, and 27 to 35 percent clay.

The A horizon is 35 to 60 percent rock fragments and 20 to 27 percent clay.

The Bt horizon is very gravelly clay loam, very cobbly clay loam, or very cobbly sandy clay loam. It is 35 to 50 percent rock fragments and 27 to 35 percent clay.

Ausmus Series

The Ausmus series consists of very deep, somewhat poorly drained or moderately well drained soils that formed in alluvium and lacustrine sediment overblown by eolian

sand (fig. 13). The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed, frigid Aquic Natrargids

Typical pedon of Ausmus fine sandy loam, 0 to 1 percent slopes, flooded; about 1,000 feet west and 1,500 feet north of the southeast corner of sec. 16, T. 26 S., R. 33 E.; Malheur Lake East quadrangle.

A—0 to 2 inches; light brownish gray (2.5Y 6/2) fine sandy loam, dark grayish brown (2.5Y 4/2) moist; weak thin and medium platy structure; soft, very friable, moderately sticky and slightly plastic; common very fine and few fine roots; many very fine irregular pores; strongly effervescent with disseminated carbonates; 16 percent calcium carbonate equivalent; sodium adsorption ratio is 18; electrical conductivity is 3 millimhos per centimeter; strongly alkaline (pH 8.9); abrupt smooth boundary.

Btkn—2 to 9 inches; light brownish gray (2.5Y 6/2) silty clay loam, dark grayish brown (2.5Y 4/2) moist; strong fine prismatic structure parting to strong fine angular blocky; very hard, very firm, very sticky and very plastic; common very fine and few fine roots; common very fine tubular pores; common faint clay films on faces of peds; strongly effervescent with disseminated carbonates; 20 percent calcium carbonate equivalent; sodium adsorption ratio is 70; electrical conductivity is 7 millimhos per centimeter; very strongly alkaline (pH 9.1); clear smooth boundary.

Bkn—9 to 16 inches; light brownish gray (2.5Y 6/2) silty clay loam, olive brown (2.5Y 4/3) moist; weak medium and fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine tubular pores; strongly effervescent with disseminated carbonates; 21 percent calcium carbonate equivalent; sodium adsorption ratio is 187; electrical conductivity is 13 millimhos per centimeter; very strongly alkaline (pH 9.4); gradual smooth boundary.

Bknz1—16 to 29 inches; light brownish gray (2.5Y 6/2) silt loam, olive brown (2.5Y 4/3) moist; weak fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few fine roots; common very fine tubular pores; strongly effervescent with disseminated carbonates; 22 percent calcium carbonate equivalent; sodium adsorption ratio is 401; electrical conductivity is 25 millimhos per centimeter; very strongly alkaline (pH 9.7); gradual smooth boundary.

Bknz2—29 to 36 inches; light yellowish brown (2.5Y 6/3) loam, dark olive brown (2.5Y 3/3) moist; weak medium prismatic structure parting to moderate fine subangular blocky; hard, firm, slightly sticky and slightly plastic; few very fine tubular pores; few fine distinct brown (7.5YR 4/4) iron concentrations; strongly effervescent; few fine carbonate filaments; 1 percent calcium carbonate equivalent; sodium adsorption ratio is 488; electrical conductivity is 29 millimhos per centimeter; very strongly alkaline (pH 9.7); gradual smooth boundary.

Bknz3—36 to 69 inches; light yellowish brown (2.5Y 6/3) loam, dark olive brown (2.5Y 3/3) moist; moderate fine prismatic structure parting to strong fine angular blocky; very hard, very firm, slightly sticky and slightly plastic; common very fine and fine tubular pores; common fine distinct brown (7.5YR 4/4) iron concentrations; common prominent black (10YR 2/1) manganese concentrations and common prominent continuous gray (10YR 5/1) skeletans in root channels and pores; many fine carbonate filaments; strongly effervescent; 3 percent calcium carbonate equivalent; sodium adsorption ratio is 449; electrical conductivity is 27 millimhos per centimeter; very strongly alkaline (pH 9.7).

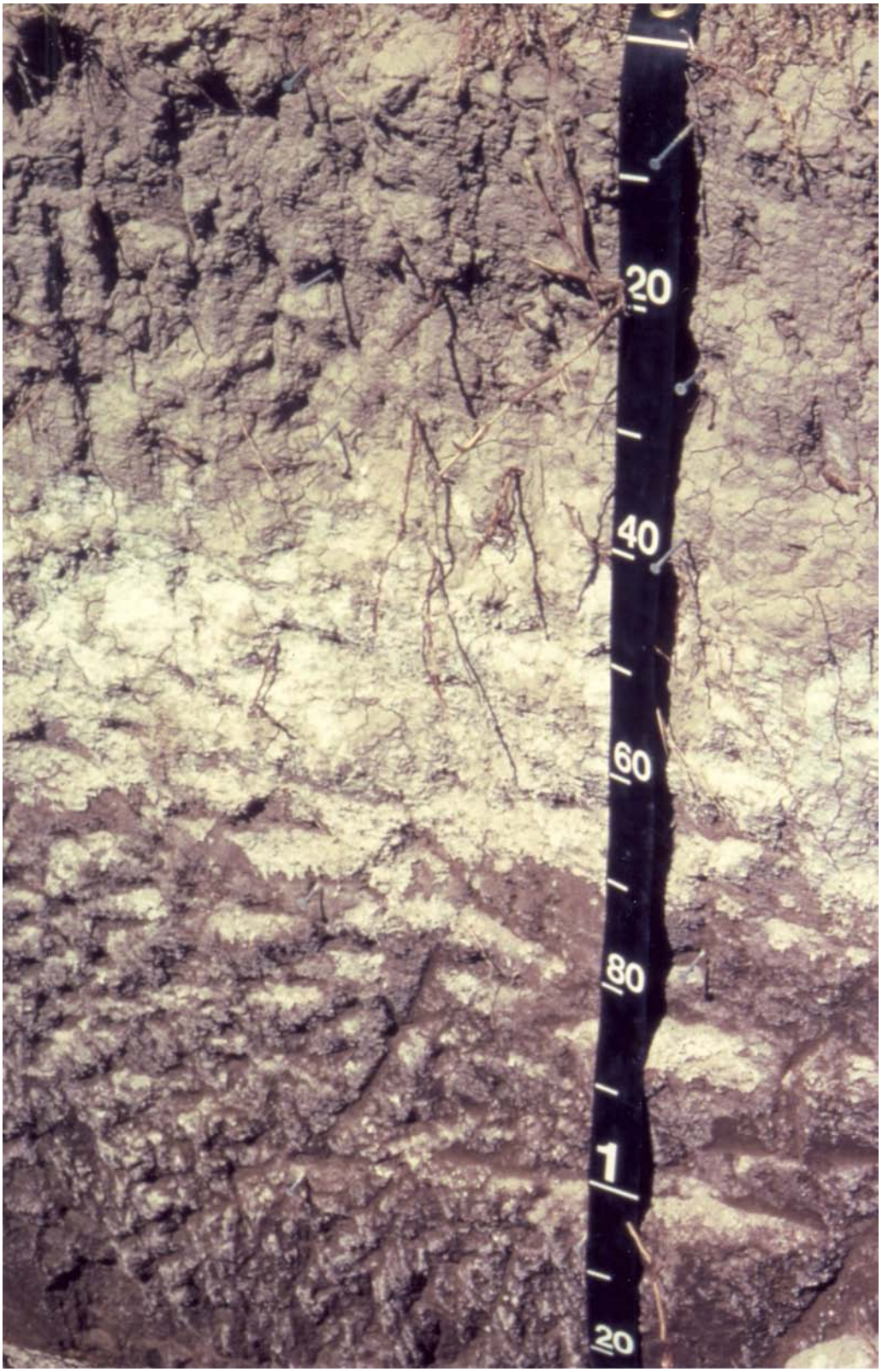


Figure 13.—Typical profile of an Ausmus soil that formed in lacustrine sediment. Salts are at a depth of 40 to 120 centimeters.

Bedrock is at a depth of more than 60 inches. Frequent or rare ponding occurs in spring. A high water table is present in spring. The particle-size control section averages 25 to 35 percent clay and 5 to 15 percent material that is coarser than very fine sand.

The A horizon has hue of 10YR or 2.5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 or 3. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 10 to 20.

The B horizon has hue of 10YR to 5Y, value of 4 to 7 dry and 3 to 5 moist, and chroma of 2 or 3. It is very strongly alkaline. The Btkn and Bkn horizons are silty clay loam or clay loam with 27 to 35 percent clay. The sodium adsorption ratio is 20 to 200, increasing with depth. The calcium carbonate equivalent is 10 to 20 percent, decreasing with depth. Electrical conductivity is 4 to 16 millimhos per centimeter. The Bknz horizon is silt loam or loam with 20 to 27 percent clay. The sodium adsorption ratio is 300 to 500. The calcium carbonate equivalent is 1 to 20 percent, decreasing with depth. Electrical conductivity is 16 to 32 millimhos per centimeter.

Aval Series

The Aval series consists of shallow, well drained soils that formed in cinders and eolian sand over welded tuff and basalt. The soils are on hills. Slope is 2 to 20 percent. Elevation is 4,100 to 4,700 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy, frigid Lithic Xeric Haplocambids

Typical pedon of Aval very gravelly coarse sandy loam in an area of Srednic-Aval complex, 2 to 20 percent slopes; about 2,200 feet north and 1,400 feet west of the southeast corner of sec. 15, T. 29 S., R. 32 E.; Diamond quadrangle.

A—0 to 2 inches; dark grayish brown (10YR 4/2) very gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; moderate very fine and fine granular structure; soft, very friable, nonsticky and nonplastic; few very fine roots; 35 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

Bw1—2 to 7 inches; grayish brown (10YR 5/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine tubular pores; 25 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw2—7 to 18 inches; brown (10YR 5/3) gravelly coarse sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine, medium, and coarse roots; common very fine tubular pores; 30 percent gravel and 2 percent cobbles; slightly alkaline (pH 7.7); abrupt wavy boundary.

2R—18 inches; welded tuff.

The mollic colors are due to the parent material. Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 15 to 35 percent rock fragments, mainly gravel-sized cinders; 5 to 18 percent clay; and 40 to 85 percent volcanic glass.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3. It is 1 to 3 percent organic matter. It is 35 to 50 percent gravel-sized cinders and 5 to 12 percent clay.

The Bw horizon is gravelly sandy loam, gravelly loam, or gravelly coarse sandy

loam. It is 0.5 to 1.0 percent organic matter. It is 15 to 35 percent gravel-sized cinders and 5 to 18 percent clay.

Baconcamp Series

The Baconcamp series consists of moderately deep, well drained soils that formed in colluvium over basalt and andesite. The soils are on mountains. Slope is 3 to 80 percent. Elevation is 5,100 to 9,700 feet. The mean annual precipitation is 14 to 40 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed Pachic Cryoborolls

Typical pedon of Baconcamp very cobbly loam in an area of Hackwood-Baconcamp complex, 20 to 35 percent slopes; about 700 feet south and 2,300 feet east of the northwest corner of sec. 17, T. 41 S., R. 38 E.; "The V" quadrangle.

A1—0 to 4 inches; very dark grayish brown (10YR 3/2) very cobbly loam, black (10YR 2/1) moist; moderate thin platy structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine, fine, and medium roots; many irregular and tubular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly acid (pH 6.4); gradual wavy boundary.

A2—4 to 20 inches; very dark grayish brown (10YR 3/2) gravelly loam, black (10YR 2/1) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, and medium roots; many irregular and tubular pores; 15 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); gradual wavy boundary.

A3—20 to 35 inches; dark grayish brown (10YR 4/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many irregular and tubular pores; 45 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); abrupt irregular boundary.

R—35 inches; fractured basalt.

The mollic epipedon is 20 to 40 inches thick. Depth to bedrock is 20 to 40 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly gravel and cobbles, and 18 to 30 percent clay. The profile is slightly acid or neutral.

The A1 horizon is very gravelly loam, very cobbly loam, stony loam, stony clay loam, very stony loam, or very stony clay loam. It is 20 to 50 percent rock fragments and 18 to 30 percent clay.

The A2 and A3 horizons are very gravelly loam, very cobbly loam, very gravelly clay loam, or gravelly loam. They are 15 to 50 percent rock fragments and 18 to 30 percent clay.

Berdugo Series

The Berdugo series consists of very deep, well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 5 percent. Elevation is 4,500 to 5,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Xeric Paleargids

Typical pedon of Berdugo silt loam, 0 to 3 percent slopes, about 2,300 feet south and 250 feet east of the northwest corner of sec. 35, T. 34 S., R. 30 E.; Blitzen SW quadrangle.

A—0 to 1 inch; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR

4/2) moist; moderate medium platy structure; slightly hard, friable, moderately sticky and slightly plastic; many very fine and fine and few coarse roots; common fine vesicular pores; 10 percent gravel; neutral (pH 7.2); abrupt wavy boundary.

2Bt1—1 to 4 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; moderate very fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine and coarse roots; common very fine tubular pores; common faint clay films on faces of peds; slightly alkaline (pH 7.8); clear wavy boundary.

2Bt2—4 to 12 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common very fine tubular pores; common faint clay films on faces of peds; moderately alkaline (pH 8.0); gradual wavy boundary.

3Bkq—12 to 17 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; extremely hard, firm and brittle, slightly sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; strongly effervescent; white (10YR 8/1) carbonates in some pores; moderately alkaline (pH 8.2); gradual wavy boundary.

3BC—17 to 26 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, firm, nonsticky and nonplastic; few fine roots; few fine tubular pores; moderately alkaline (pH 8.2); clear wavy boundary.

4C—26 to 39 inches; pale brown (10YR 6/3) loamy sand, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine roots; few fine tubular pores; 10 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

5C—39 to 45 inches; pale brown (10YR 6/3) extremely gravelly sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; 75 percent gravel and 10 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

6C—45 to 65 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine tubular pores; 20 percent gravel; moderately alkaline (pH 8.2).

The argillic horizon is 6 to 15 inches thick. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 35 to 45 percent clay. Some strata below the argillic horizon are weakly cemented.

The A horizon is neutral or slightly alkaline.

The 2Bt horizon is silty clay loam, silty clay, or clay. It is slightly alkaline or moderately alkaline.

The 3Bkq and 3BC horizons are loam, clay loam, silt loam, or very fine sandy loam. They have hue of 10YR or 2.5Y, value of 6 to 8 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry.

The C horizon is stratified loam, loamy sand, gravelly sandy loam, or extremely gravelly sand. It has hue of 10YR or 2.5Y, value of 6 to 8 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry.

Bigfrog Series

The Bigfrog series consists of soils that are very shallow and shallow to a duripan and are well drained. These soils formed in old alluvium derived from mixed igneous rock. They are on fan terraces. Slope is 8 to 40 percent. Elevation is 4,200 to 5,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, mesic, shallow Xeric Argidurids

Typical pedon of Bigfrog very cobbly sandy clay loam in an area of Bigfrog-Brock complex, 8 to 40 percent slopes; about 2,000 feet south and 1,800 feet west of the northeast corner of sec. 12, T. 39 S., R. 34 E.; Ladycomb Peak quadrangle.

A—0 to 3 inches; brown (10YR 5/3) very cobbly sandy clay loam, dark brown (10YR 4/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and nonplastic; many very fine and common fine roots; many very fine and fine irregular tubular pores; 30 percent gravel and 25 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—3 to 10 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure parting to weak fine subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; common very fine and few fine irregular tubular pores; few faint clay films on faces of peds; 30 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—10 to 18 inches; pale brown (10YR 6/3) gravelly sandy clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and common fine roots; common very fine and fine irregular tubular pores; few faint clay films on faces of peds; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bkqm1—18 to 32 inches; extremely gravelly indurated duripan; massive; extremely hard, very rigid; violently effervescent with disseminated carbonates; clear smooth boundary.

Bkqm2—32 to 38 inches; extremely gravelly indurated duripan; massive; extremely hard, very rigid; slightly effervescent with disseminated carbonates; abrupt smooth boundary.

C—38 to 60 inches; stratified very gravelly sandy loam and very gravelly loamy sand.

Bedrock is at a depth of more than 60 inches. Thickness of the solum and depth to the duripan are 8 to 18 inches. The particle-size control section averages 15 to 35 percent rock fragments, mainly gravel, and 25 to 35 percent clay.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is 35 to 60 percent rock fragments and 20 to 30 percent clay. It is neutral or slightly alkaline.

The Bt horizon has hue of 7.5YR or 10YR. It is gravelly clay loam or gravelly sandy clay loam. It is 15 to 35 percent rock fragments and 25 to 35 percent clay. It is slightly alkaline or moderately alkaline.

The Bkqm horizon is 6 to 20 inches thick. It has hue of 7.5YR or 10YR. It is slightly alkaline or moderately alkaline.

The C horizon is stratified very gravelly sandy loam and very gravelly loamy sand. It is 35 to 60 percent rock fragments and 5 to 25 percent clay.

Bocker Series

The Bocker series consists of very shallow, well drained soils that formed in colluvium and residuum derived from basalt, andesite, rhyolite, and welded tuff. The soils are on hills and plateaus. Slope is 5 to 60 percent. Elevation is 4,600 to 6,600 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Lithic Haploxerolls

Typical pedon of Bocker extremely stony loam in an area of Bocker-Westbutte

complex, 5 to 25 percent slopes; about 2,700 feet north and 1,200 feet east of the southwest corner of sec. 16, T. 34 S., R. 32 3/4 E.; Ankle Creek quadrangle.

A—0 to 3 inches; pale brown (10YR 6/3) extremely stony loam, very dark grayish brown (10YR 3/2) moist; moderate very thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores and common very fine and fine tubular and vesicular pores; 5 percent gravel, 15 percent cobbles, and 45 percent stones; slightly acid (pH 6.2); abrupt smooth boundary.

Bw—3 to 7 inches; brown (10YR 5/3) very stony loam, very dark grayish brown (10YR 3/2) moist; weak medium prismatic structure parting to moderate coarse angular blocky; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores, common very fine tubular pores, and few very fine vesicular pores; 5 percent gravel, 15 percent cobbles, and 30 percent stones; slightly acid (pH 6.2); abrupt wavy boundary.

R—7 inches; basalt.

The mollic epipedon is 4 to 10 inches thick. Thickness of the solum and depth to bedrock are 4 to 10 inches. The particle-size control section averages 35 to 70 percent rock fragments, mainly cobbles and stones, and 20 to 27 percent clay. The profile is slightly acid or neutral.

The A horizon is 60 to 70 percent rock fragments and 20 to 27 percent clay.

The Bw horizon is very stony loam or extremely stony loam. It is 35 to 70 percent rock fragments and 20 to 27 percent clay.

Boravall Series

The Boravall series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 3 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts

Typical pedon of Boravall silty clay loam in an area of Boravall-Playas complex, 0 to 3 percent slopes; about 2,600 feet south and 1,000 feet west of the northeast corner of sec. 22, T. 37 S., R. 33 E.; Borax Lake quadrangle.

Aknz—0 to 9 inches; light gray (10YR 7/1) silty clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse roots; many very fine irregular pores; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 674; very strongly alkaline (pH 10.5); clear wavy boundary.

Bkn—9 to 19 inches; light gray (10YR 7/2) silty clay, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; common very fine, fine, medium, and coarse roots; many very fine irregular pores; strongly effervescent with disseminated carbonates; 4 percent calcium carbonate equivalent; electrical conductivity is 2 millimhos per centimeter; sodium adsorption ratio is 30; very strongly alkaline (pH 9.4); abrupt wavy boundary.

BCkn—19 to 43 inches; very pale brown (10YR 7/3) silty clay loam, brown (10YR 4/3) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; few medium roots; common very fine irregular pores; strongly effervescent with disseminated carbonates; 14 percent calcium carbonate equivalent; electrical

conductivity is 2.5 millimhos per centimeter; sodium adsorption ratio is 20; strongly alkaline (pH 8.6); abrupt wavy boundary.
2Bkg—43 to 50 inches; light gray (5Y 7/1) silty clay loam, greenish gray (5Y 5/1) moist; massive; soft, very friable, moderately sticky and moderately plastic; common medium and coarse roots; many very fine irregular and tubular pores; strongly effervescent with disseminated carbonates; moderately alkaline (pH 8.0); abrupt wavy boundary.
2Cg—50 to 60 inches; light gray (5Y 7/1) silty clay loam, very dark gray (5Y 3/1) moist; massive; soft, very friable, moderately sticky and moderately plastic; common medium and coarse roots; many fine irregular and tubular pores; common fine prominent yellowish brown (10YR 5/8) and few fine prominent yellow (10YR 8/8) iron concentrations; moderately alkaline (pH 8.0).

The solum is 30 to 40 inches thick. Bedrock is at a depth of more than 60 inches. Calcium carbonate is disseminated throughout the profile. Frequent ponding occurs in winter and spring. A high water table is present throughout the year. The particle-size control section averages 35 to 45 percent clay.

The A horizon is 27 to 40 percent clay. The calcium carbonate equivalent is 1 to 5 percent. The sodium adsorption ratio is 100 to 200. Electrical conductivity is 16 to 32 millimhos per centimeter.

The B and BC horizons are silty clay loam or silty clay with 35 to 50 percent clay. They are strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 13 to 50. Electrical conductivity is
2 to 4 millimhos per centimeter. The calcium carbonate equivalent is 5 to 15 percent.

The 2B and 2C horizons have hue of 10YR or 5Y. They are silt loam or silty clay loam with 20 to 40 percent clay. They are moderately alkaline or strongly alkaline. The sodium adsorption ratio is 5 to 13.

Borobey Series

The Borobey series consists of very deep, somewhat excessively drained soils that formed in alluvium derived from mixed igneous rock and volcanic ash. The soils are on stream terraces. Slope is 2 to 15 percent. Elevation is 4,400 to 5,300 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy, frigid Vitritorrandic Haploxerolls

Typical pedon of Borobey sandy loam, 2 to 15 percent slopes, about 2,500 feet north and 1,800 feet west of the southeast corner of sec. 5, T. 28 S., R. 25 E.; Little Juniper Mountain quadrangle.

A—0 to 3 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; 5 percent gravel-sized pumice fragments; slightly alkaline (pH 7.8); clear wavy boundary.
AB—3 to 11 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; 5 percent cobble-sized pumice fragments and 10 percent gravel-sized pumice fragments; slightly alkaline (pH 7.8); gradual wavy boundary.
Bq1—11 to 23 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm and brittle, nonsticky and nonplastic; common very fine roots; few fine tubular pores; 5 percent cobble-sized pumice fragments; slightly alkaline (pH 7.8); clear wavy boundary.
Bq2—23 to 27 inches; brown (10YR 5/3) gravelly loamy sand, brown (10YR 4/3)

moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine and fine roots; few fine tubular pores; 5 percent cobble-sized pumice fragments and 15 percent gravel-sized pumice fragments; slightly alkaline (pH 7.8); gradual wavy boundary.

C—27 to 60 inches; light yellowish brown (10YR 6/4) gravelly loamy sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; few fine roots; few fine tubular pores; 5 percent cobble-sized pumice fragments and 15 percent gravel-sized pumice fragments; slightly alkaline (pH 7.8).

Bedrock is at a depth of more than 60 inches. Depth to the hard, firm and brittle layer is 10 to 30 inches. The profile is 5 to 30 percent ash and pumice. It is 5 to 25 percent rock fragments, mainly gravel-sized pumice fragments.

The Borobey soils in this survey area are a taxadjunct to the Borobey series because the family particle-size class is coarse-loamy.

Boulder Lake Series

The Boulder Lake series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are in closed depressions on plateaus and on lake plains. Slope is 0 to 2 percent. Elevation is 4,500 to 6,000 feet. The mean annual precipitation is 8 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Xeric Epiaquerts

Typical pedon of Boulder Lake clay, 0 to 2 percent slopes, about 1,800 feet south and 2,400 feet west of the northeast corner of sec. 11, T. 34 S., R. 32 E.; Roaring Springs quadrangle.

A—0 to 1 inch; gray (10YR 5/1) clay, dark grayish brown (10YR 4/2) moist; strong fine granular structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine irregular pores; slightly alkaline (pH 7.4); abrupt wavy boundary.

Bw—1 to 10 inches; grayish brown (10YR 5/2) clay, very dark brown (10YR 2/2) moist; weak very coarse prismatic structure parting to strong medium angular blocky; extremely hard, friable, very sticky and very plastic; many very fine and common fine roots; few very fine tubular pores; slightly alkaline (pH 7.4); gradual wavy boundary.

Bss1—10 to 24 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; few fine distinct yellowish brown (10YR 5/6) mottles; weak very coarse prismatic structure parting to moderate coarse subangular blocky; very hard, very friable, very sticky and very plastic; few fine roots; few very fine tubular pores; common intersecting slickensides; slightly alkaline (pH 7.4); clear wavy boundary.

Bss2—24 to 42 inches; grayish brown (10YR 5/2) clay, very dark grayish brown (10YR 3/2) moist; common medium distinct yellowish brown (10YR 5/6) mottles; massive; very hard, very friable, very sticky and very plastic; few very fine tubular pores; few intersecting slickensides; slightly alkaline (pH 7.6); clear wavy boundary.

Bk—42 to 62 inches; brown (10YR 5/3) silty clay loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, moderately sticky and moderately plastic; few very fine tubular pores; common medium distinct yellowish brown (10YR 5/6) iron concentrations; few thin filaments of carbonates; slightly effervescent; moderately alkaline (pH 8.0).

Bedrock is at a depth of more than 60 inches. The solum is 24 to 60 inches thick.

Frequent ponding occurs in spring. A high water table is present late in winter, in spring, and early in summer. The particle-size control section averages 40 to 60 percent clay.

The A horizon has hue of 10YR or 2.5Y. It is clay loam or clay with 30 to 60 percent clay. It is neutral or slightly alkaline.

The Bw and Bss horizons are silty clay or clay with 40 to 60 percent clay. They are neutral or slightly alkaline.

The Bk horizon is silty clay loam or clay loam with 35 to 40 percent clay. It is slightly alkaline or moderately alkaline.

Brabble Series

The Brabble series consists of soils that are moderately deep to duripan and are well drained. The soils formed in old alluvium over fractured basalt and andesite. They are on hills. Slope is 5 to 25 percent. Elevation is 4,800 to 5,600 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Xeric Haplodurids

Typical pedon of Brabble gravelly sandy clay loam in an area of Brabble-Calderwood complex, 5 to 25 percent slopes; about 800 feet north and 1,900 feet east of the southwest corner of sec. 18, T. 37 S., R. 35 E.; Red Lookout Butte quadrangle.

A1—0 to 3 inches; grayish brown (10YR 5/2) gravelly sandy clay loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine irregular pores; 20 percent gravel and 5 percent cobbles; neutral (pH 7.2); clear wavy boundary.

A2—3 to 9 inches; light brownish gray (10YR 6/2) sandy clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium platy structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine roots; many very fine vesicular, irregular, and tubular pores; 10 percent gravel; slightly alkaline (pH 7.4); gradual wavy boundary.

Bw1—9 to 18 inches; yellowish brown (10YR 5/4) clay loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate medium subangular blocky; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine irregular and tubular pores; 10 percent gravel; slightly alkaline (pH 7.8); gradual wavy boundary.

Bw2—18 to 26 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.

Bk—26 to 33 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; strongly effervescent with many filaments and soft masses of carbonates; 10 percent gravel; moderately alkaline (pH 7.9); clear wavy boundary.

2Bkqm—33 to 38 inches; indurated duripan; extremely hard; strongly effervescent; 10 percent gravel; clear wavy boundary.

2R—38 inches; fractured andesite.

Depth to bedrock is 30 to 50 inches. Depth to the duripan is 20 to 40 inches. Calcium carbonate is at a depth of 20 to 30 inches. The particle-size control section averages 5 to 25 percent rock fragments, mainly gravel, and 20 to 35 percent clay.

The A horizon is 5 to 30 percent rock fragments and 20 to 35 percent clay. It is neutral or slightly alkaline.

The Bw horizon is loam, clay loam, or gravelly clay loam. It is 5 to 20 percent rock fragments and 20 to 35 percent clay.

The Bk horizon is moderately alkaline or strongly alkaline.

The 2Bkqm horizon is 3 to 10 inches thick. It is 5 to 20 percent rock fragments.

Brace Series

The Brace series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in colluvium and old alluvium over basalt, welded tuff, ashflow tuff, and andesite. They are on hills and plateaus. Slope is 2 to 20 percent. Elevation is 4,100 to 5,800 feet. The mean annual precipitation is 8 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Xeric Argidurids

Typical pedon of Brace stony loam in an area of Raz-Brace complex, 2 to 20 percent slopes; about 300 feet north and 2,300 feet east of the southwest corner of sec. 21, T. 38 S., R. 32 E.; Square Mountain quadrangle.

A—0 to 6 inches; pale brown (10YR 6/3) stony loam, dark brown (10YR 3/3) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine, common fine, and few medium irregular and vesicular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); gradual wavy boundary.

Bt—6 to 13 inches; pale brown (10YR 6/3) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many very fine irregular pores; common distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.6); clear wavy boundary.

Bq—13 to 21 inches; very pale brown (10YR 7/4) loam, dark yellowish brown (10YR 3/6) moist; massive; very hard, firm and brittle, nonsticky and nonplastic; few very fine roots; common very fine irregular pores and few very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bkq—21 to 32 inches; yellow (10YR 7/6) loam, yellowish brown (10YR 5/6) moist; massive; very hard, firm and brittle, nonsticky and nonplastic; few very fine roots; common very fine irregular and tubular pores; slightly effervescent with disseminated carbonates; 5 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

Bkqm—32 to 36 inches; indurated duripan; extremely hard; strongly effervescent with disseminated carbonates; 20 percent gravel; clear wavy boundary.

2R—36 inches; fractured basalt.

Depth to bedrock is 22 to 40 inches. The duripan is at a depth of 20 to 37 inches. Calcium carbonate is at a depth of 21 to 30 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 18 to 35 percent clay. The Bq horizon is absent in some pedons.

The A horizon is cobbly fine sandy loam, stony loam, or very stony loam. It is 15 to 50 percent rock fragments and 10 to 27 percent clay. It is neutral or slightly alkaline.

The Bt horizon is sandy clay loam, loam, or clay loam. It is 5 to 15 percent rock fragments and 20 to 35 percent clay.

The Bq and Bkq horizons are sandy loam or loam. They are 5 to 15 percent rock fragments and 15 to 25 percent clay. They are slightly alkaline or moderately alkaline.

The Bkqm horizon is 2 to 10 inches thick. It is 20 to 40 percent rock fragments.

Brezniak Series

The Brezniak series consists of very shallow and shallow, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and welded tuff. The soils are on plateaus and mountains. Slope is 2 to 65 percent. Elevation is 3,600 to 6,800 feet. The mean annual precipitation is 8 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Clayey, montmorillonitic, mesic Lithic Argixerolls

Typical pedon of Brezniak cobbly loam in an area of Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes; about 1,200 feet south and 1,200 feet west of the northeast corner of sec. 27, T. 35½ S., R. 32½ E.; Skull Creek Butte quadrangle.

A—0 to 3 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak and moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; many very fine and fine tubular and irregular pores; 10 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 7 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular and irregular pores; common faint clay films on faces of peds; neutral (pH 7.2); clear smooth boundary.

Bt2—7 to 10 inches; reddish yellow (7.5YR 6/6) clay, strong brown (7.5YR 4/6) moist; moderate medium angular blocky structure; extremely hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine and fine tubular and irregular pores; common distinct clay films on faces of peds; 10 percent stones; neutral (pH 6.8); abrupt wavy boundary.

R—10 inches; fractured basalt.

The mollic epipedon is 7 to 10 inches thick. Thickness of the solum and depth to bedrock are 7 to 12 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 35 to 45 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is 18 to 27 percent clay.

The Bt horizon has hue of 10YR or 7.5YR, value of 4 to 6 dry and 2 to 4 moist, and chroma of 3 to 6 dry or moist. It is clay or clay loam with 35 to 50 percent clay.

Brock Series

The Brock series consists of soils that are shallow to a duripan and are well drained. The soils formed in old alluvium derived from mixed igneous rock. They are on fan terraces. Slope is 8 to 40 percent. Elevation is 4,200 to 5,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, mesic, shallow Xeric Argidurids

Typical pedon of Brock very gravelly sandy loam in an area of Bigfrog-Brock complex, 8 to 40 percent slopes; about 1,600 feet south and 1,000 feet east of the northwest corner of sec. 14, T. 38 S., R. 34 E.; Fields quadrangle.

A—0 to 3 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, brown (10YR 4/3) moist; weak thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular and tubular

pores; 40 percent gravel, 10 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt—3 to 7 inches; light brownish gray (10YR 6/2) very gravelly sandy clay loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few very fine and common fine irregular and tubular pores; 25 percent gravel, 10 percent cobbles, and 5 percent stones; few faint clay films on faces of peds; moderately alkaline (pH 8.1); abrupt smooth boundary.

Bq—7 to 10 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 5/3) moist; weak fine subangular blocky structure parting to weak fine granular; slightly hard, very friable, slightly sticky and nonplastic; few very fine and fine roots; few very fine and common fine irregular and tubular pores; 30 percent gravel and 10 percent cobbles; discontinuous weak silica cementation; moderately alkaline (pH 8.1); abrupt wavy boundary.

Bkqm—10 to 16 inches; extremely gravelly indurated duripan; massive; extremely hard, very rigid; strongly effervescent with common fine disseminated carbonates; abrupt smooth boundary.

C—16 to 60 inches; stratified very gravelly sandy loam and very gravelly loamy sand; moderately alkaline (pH 8.1).

Bedrock is at a depth of more than 60 inches. Thickness of the solum and depth to the duripan are 8 to 18 inches. The particle-size control section averages 40 to 70 percent rock fragments, mainly gravel, and 20 to 30 percent clay.

The A horizon is 35 to 60 percent rock fragments and 10 to 20 percent clay. It is slightly alkaline or moderately alkaline.

The Bt horizon is very gravelly sandy clay loam or extremely gravelly sandy clay loam. It is 35 to 70 percent rock fragments and 18 to 32 percent clay.

The Bkqm horizon is 4 to 12 inches thick.

The C horizon is stratified very gravelly loamy sand to very gravelly sandy loam. It is 35 to 60 percent rock fragments and 5 to 20 percent clay.

Bruncan Series

The Bruncan series consists of soils that are shallow to a duripan and are well drained. The soils formed in old alluvium over basalt. They are on plateaus. Slope is 0 to 5 percent. Elevation is 4,700 to 5,800 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, mesic, shallow Xeric Argidurids

Typical pedon of Bruncan cobbly fine sandy loam in an area of Bruncan complex, 0 to 5 percent slopes; about 660 feet south and 2,600 feet west of the northeast corner of sec. 20, T. 41 S., R. 33 E.; Oregon End Table quadrangle.

A—0 to 5 inches; light gray (10YR 7/2) cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine and few medium vesicular pores; 5 percent gravel, 10 percent cobbles, and 2 percent stones; moderately alkaline (pH 8.0); abrupt smooth boundary.

Bt1—5 to 10 inches; very pale brown (10YR 7/4) clay loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and fine irregular pores; many faint clay films on faces of peds and lining pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bt2—10 to 15 inches; light brown (7.5YR 6/4) clay loam, brown (7.5YR 5/4) moist;

weak medium platy structure parting to moderate fine subangular blocky; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine vesicular, tubular, and irregular pores; 10 percent durinodes; common faint clay films on faces of peds and lining pores; 5 percent gravel; slightly alkaline (pH 7.8); clear broken boundary.

Bkqm—15 to 17 inches; pink (7.5YR 8/4) indurated duripan; massive; extremely hard, very rigid; strongly effervescent with disseminated carbonates; abrupt smooth boundary.

2R—17 inches; basalt.

The solum is 10 to 20 inches thick. Depth to bedrock is 13 to 30 inches. The duripan is at a depth of 11 to 20 inches. The particle-size control section averages 5 to 25 percent rock fragments, mainly gravel, and 20 to 30 percent clay.

The A horizon is 1 to 5 inches thick. It is 15 to 30 percent rock fragments and 10 to 20 percent clay. It is neutral to moderately alkaline.

The Bt horizon has hue of 7.5YR or 10YR. It is loam, clay loam, or gravelly sandy clay loam. It is 5 to 25 percent rock fragments and 20 to 30 percent clay. It is slightly alkaline or moderately alkaline.

The Bkqm horizon is 1 to 12 inches thick.

Brunzell Series

The Brunzell series consists of very deep, well drained soils that formed in alluvium derived from mixed igneous rock. The soils are in drainageways. Slope is 0 to 2 percent. Elevation is 4,600 to 5,000 feet. The mean annual precipitation is 14 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Typic Haploxerolls

Typical pedon of Brunzell gravelly loam, 0 to 2 percent slopes, about 2,000 feet north and 1,600 feet west of the southeast corner of sec. 25, T. 22 S., R. 27 E.; Egypt Canyon quadrangle.

A1—0 to 2 inches; grayish brown (10YR 5/2) gravelly loam, very dark brown (10YR 2/2) moist; weak medium platy structure parting to moderate medium granular; soft, very friable, nonsticky and nonplastic; common very fine and fine and few medium roots; common very fine, fine, and medium irregular pores; 20 percent gravel; neutral (pH 6.8); clear smooth boundary.

A2—2 to 11 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium and coarse roots; common very fine and fine and few medium irregular pores; 10 percent gravel and 5 percent cobbles; neutral (pH 7.0); gradual smooth boundary.

Bw1—11 to 18 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine and common medium roots; few very fine, fine, and medium irregular pores; 20 percent gravel and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bw2—18 to 30 inches; yellowish brown (10YR 5/4) very gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and slightly plastic; few very fine, fine, medium, and coarse roots; few very fine, fine, and medium irregular pores; 40 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.3); clear wavy boundary.

2C1—30 to 47 inches; light yellowish brown (10YR 6/4) extremely gravelly loamy

coarse sand, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common very fine, fine, and medium irregular pores; 55 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); gradual wavy boundary.

2C2—47 to 62 inches; pale brown (10YR 6/3) extremely gravelly loamy coarse sand, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; few very fine and fine irregular pores; 55 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4).

The mollic epipedon is 10 to 20 inches thick. Depth to sand and gravel (2C horizon) is 25 to 40 inches. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly gravel, and 20 to 30 percent clay.

The A horizon is 15 to 30 percent rock fragments and 18 to 27 percent clay.

The Bw horizon is gravelly sandy clay loam, very gravelly sandy clay loam, or very gravelly clay loam. It is 25 to 60 percent rock fragments and 20 to 30 percent clay.

The 2C horizon is very gravelly sandy loam, very gravelly loamy coarse sand, or extremely gravelly loamy coarse sand. It is 40 to 85 percent rock fragments and 5 to 18 percent clay. It is neutral or slightly alkaline.

Bucklake Series

The Bucklake series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from welded tuff, rhyolite, basalt, and andesite. The soils are on hills. Slope is 20 to 50 percent. Elevation is 3,400 to 4,200 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Aridic Argixerolls

Typical pedon of Bucklake very stony clay loam, 20 to 50 percent north slopes, about 2,100 feet north and 200 feet west of the southeast corner of sec. 14, T. 23 S., R. 36 E.; Warm Springs Creek quadrangle.

A—0 to 2 inches; brown (10YR 5/3) very stony clay loam, dark brown (10YR 3/3) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine vesicular pores; 20 percent gravel, 10 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—2 to 16 inches; brown (10YR 4/3) gravelly clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and slightly plastic; many very fine roots; few very fine irregular pores; common distinct clay films on faces of peds; 20 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—16 to 31 inches; yellowish brown (10YR 5/6) gravelly clay loam, dark yellowish brown (10YR 3/6) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; few faint clay films on faces of peds; 25 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.

R—31 inches; welded tuff.

The mollic epipedon is 10 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 5 to 30 percent rock fragments, mainly gravel, and 35 to 50 percent clay.

The A horizon is very cobbly loam or very stony clay loam. It is 35 to 50 percent rock fragments and 20 to 30 percent clay.

The Bt horizon is clay, gravelly clay, or gravelly clay loam. It is 5 to 30 percent rock fragments and 35 to 50 percent clay.

Buckwilder Series

The Buckwilder series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from basalt and andesite. The soils are on mountains and plateaus. Slope is 3 to 35 percent. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 12 to 25 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Very-fine, montmorillonitic Argic Vertic Cryoborolls

Typical pedon of Buckwilder very cobbly clay loam in an area of Leemorris-Buckwilder complex, 15 to 35 percent slopes; about 1,500 feet south and 1,000 feet west of the northeast corner of sec. 12, T. 40 S., R. 34 E.; Van Horn Basin quadrangle.

A—0 to 8 inches; grayish brown (10YR 5/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine tubular and irregular pores; 25 percent gravel and 20 percent cobbles; slightly acid (pH 6.2); abrupt wavy boundary.

2Bt1—8 to 12 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong medium prismatic structure; very hard, very firm, moderately sticky and very plastic; few very fine and fine roots; common very fine tubular and irregular pores; common distinct clay films on faces of peds; 5 percent gravel; neutral (pH 6.8); gradual smooth boundary.

2Bt2—12 to 21 inches; brown (10YR 4/3) clay, dark brown (10YR 3/3) moist; strong medium prismatic structure; very hard, very firm, moderately sticky and very plastic; few very fine and fine roots; common very fine tubular and irregular pores; common distinct clay films on faces of peds; 5 percent gravel; neutral (pH 7.2); gradual smooth boundary.

2Btk—21 to 27 inches; dark yellowish brown (10YR 4/4) cobbly clay, brown (10YR 4/3) moist; moderate coarse prismatic structure; very hard, very firm, moderately sticky and very plastic; few very fine roots; common very fine tubular and irregular pores; common distinct clay films on faces of peds; strongly effervescent with secondary carbonates on rock fragments; 10 percent gravel and 10 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

2R—27 inches; fractured basalt; violently effervescent with secondary carbonates along fractures.

The mollic epipedon is 16 to 30 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. Depth to the claypan is 6 to 10 inches. Depth to secondary carbonates is 16 to 30 inches. The particle-size control section averages 5 to 25 percent rock fragments, mainly gravel and cobbles, and 60 to 75 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is 30 to 40 percent clay and 35 to 60 percent rock fragments. It is 2 to 4 percent organic matter.

The 2Bt horizon has value of 4 or 5 dry and chroma of 3 or 4 dry. It is 5 to 15 percent rock fragments. It is 1 to 2 percent organic matter.

The 2Btk horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is clay or cobbly clay. It is 10 to 25 percent rock fragments. It is slightly alkaline or moderately alkaline.

Cagle Series

The Cagle series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from tuffaceous sedimentary rock and diatomaceous earth. The soils are on hills. Slope is 20 to 40 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Aridic Argixerolls

Typical pedon of Cagle very stony clay loam in an area of Mahoon-Cagle complex, 10 to 40 percent slopes; about 2,100 feet north and 2,000 feet east of the southwest corner of sec. 17, T. 21 S., R. 36 E.; Upton Mountain quadrangle.

A—0 to 4 inches; brown (10YR 5/3) very stony clay loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak thin platy; hard, friable, moderately sticky and moderately plastic; common very fine and fine and few medium roots; common very fine and fine and few medium vesicular pores; 15 percent gravel, 10 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt1—4 to 12 inches; brown (10YR 5/3) clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to moderate medium angular blocky; very hard, very firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine, fine, and medium irregular and tubular pores; common distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—12 to 24 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few very fine and fine roots; common very fine and few fine and medium irregular and tubular pores; many distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bt3—24 to 36 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few fine irregular and tubular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.8); clear wavy boundary.

Cr—36 inches; tuffaceous sedimentary rock.

The mollic epipedon is 7 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel, and 35 to 50 percent clay. The Bt3 horizon is absent in some pedons.

The A horizon is very gravelly loam or very stony clay loam. It is 35 to 60 percent rock fragments and 20 to 30 percent clay. It is neutral or slightly alkaline.

The Bt1 and Bt2 horizons are clay, gravelly clay loam, or gravelly clay. They are 5 to 35 percent rock fragments and 35 to 50 percent clay.

The Bt3 horizon is clay loam or gravelly clay loam. It is 5 to 35 percent rock fragments and 30 to 40 percent clay.

The Cagle soils in this survey area are a taxadjunct to the Cagle series because the subgroup is Vertic.

Calderwood Series

The Calderwood series consists of shallow, well drained soils that formed in old alluvium over fractured basalt and andesite. The soils are on hills and plateaus.

Slope is 0 to 25 percent. Elevation is 4,600 to 6,100 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, mesic Lithic Xeric Haplocambids

Typical pedon of Calderwood very gravelly loam in an area of Brabble-Calderwood complex, 5 to 25 percent slopes; about 2,300 feet south and 2,700 feet west of the northeast corner of sec. 20, T. 37 S., R. 35 E.; Red Lookout Butte quadrangle.

A—0 to 3 inches; pale brown (10YR 6/3) very gravelly loam, brown (10YR 4/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine vesicular and irregular pores; 45 percent gravel, 5 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

Bw1—3 to 12 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and fine vesicular and irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.6); clear smooth boundary.

Bw2—12 to 18 inches; pale brown (10YR 6/3) very stony clay loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many very fine and fine irregular pores; 10 percent gravel, 10 percent cobbles, and 25 percent stones; slightly alkaline (pH 7.6); gradual wavy boundary.

R—18 inches; fractured andesite; many fragments have coatings of opal on undersides.

Thickness of the solum and depth to bedrock are 12 to 20 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly cobbles and stones, and 20 to 35 percent clay.

The A horizon is very gravelly loam or cobbly loam. It is 15 to 60 percent rock fragments and 20 to 27 percent clay.

The Bw horizon is very cobbly loam, very cobbly clay loam, very stony clay loam, or very stony loam. It is 35 to 50 percent rock fragments and 20 to 35 percent clay.

Carryback Series

The Carryback series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and welded tuff. The soils are on plateaus, hills, and mountains. Slope is 2 to 50 percent. Elevation is 4,000 to 6,700 feet. The mean annual precipitation is 10 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Vertic Palexerolls

Typical pedon of Carryback silty clay loam in an area of Carryback complex, 2 to 20 percent slopes; about 1,000 feet south and 950 feet west of the northeast corner of sec. 26, T. 26 S., R. 35 E.; Venator quadrangle.

A1—0 to 3 inches; pale brown (10YR 6/3) silty clay loam, dark brown (10YR 3/3) moist; weak thin platy structure; slightly hard, friable, moderately sticky and moderately plastic; many fine roots; many very fine vesicular pores; 5 percent gravel; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—3 to 7 inches; brown (7.5YR 5/2) silty clay loam, dark brown (7.5YR 3/2) moist; moderate fine granular structure; slightly hard, friable, moderately sticky and

moderately plastic; many fine roots; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

2Bt1—7 to 11 inches; brown (7.5YR 5/2) clay, dark brown (7.5YR 3/2) moist; moderate very fine and fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many fine roots; common very fine tubular pores; few faint clay films on faces of peds and in pores; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

2Bt2—11 to 17 inches; brown (7.5YR 5/2) clay, dark brown (7.5YR 3/2) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many fine roots; many very fine tubular pores; few faint clay films on faces of peds and in pores; 10 percent gravel and cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.

2Bt3—17 to 24 inches; brown (7.5YR 5/4) clay, brown (7.5YR 4/4) moist; strong fine and medium prismatic structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; many faint clay films on faces of peds and in pores; 10 percent gravel and cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

3R—24 inches; basalt.

The mollic epipedon is 7 to 19 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. Depth to the claypan is 2 to 11 inches. The particle-size control section averages 0 to 25 percent rock fragments, mainly gravel and cobbles, and 40 to 60 percent clay. The profile has hue of 10YR or 7.5YR.

The A horizon is 2 to 11 inches thick. It has value of 5 or 6 dry and 3 moist and chroma of 2 or 3 moist or dry. It is silty clay loam, very gravelly loam, cobbly clay loam, extremely cobbly clay loam, or very stony clay loam.

The 2Bt horizon has value of 4 to 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 moist or dry. It is silty clay, clay, or gravelly silty clay.

Carvix Series

The Carvix series consists of very deep, well drained soils that formed in alluvium. The soils are on stream terraces. Slope is 0 to 8 percent. Elevation is 4,000 to 4,600 feet. The mean annual precipitation is 10 to 14 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Aridic Haploxerolls

Typical pedon of Carvix silt loam, 0 to 5 percent slopes, about 1,800 feet south and 450 feet east of the northwest corner of sec. 17, T. 23 S., R. 27 E.; Riley quadrangle.

A—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak medium and thick platy structure; soft, very friable, nonsticky and slightly plastic; few very fine and medium and many fine roots; few very fine tubular pores; 5 percent gravel; strongly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

BA—6 to 19 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate fine, medium, and coarse subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine and few very fine roots; common very fine irregular pores; 5 percent gravel; moderately alkaline (pH 8.0); gradual smooth boundary.

Bt1—19 to 39 inches; brown (10YR 5/3) loam, brown (10YR 4/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and very fine roots; many fine and very fine irregular pores; few faint clay films lining pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—39 to 60 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/4) moist; weak medium and coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine irregular pores; few faint clay films lining pores; slightly alkaline (pH 7.6).

The mollic epipedon is 10 to 20 inches thick. Thickness of the solum and depth to bedrock are more than 60 inches. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 18 to 30 percent clay.

The A and BA horizons are silt loam or loam. They are 0 to 10 percent rock fragments and 15 to 27 percent clay. The upper part is neutral or slightly alkaline, and the lower part ranges to moderately alkaline. The horizons are 1 to 3 percent organic matter.

The Bt horizon is loam or clay loam. It is 18 to 30 percent clay and 0 to 10 percent rock fragments.

Catlow Series

The Catlow series consists of very deep, well drained soils that formed in colluvium and alluvium derived from mixed igneous rock. The soils are on lake terraces. Slope is 0 to 20 percent. Elevation is 4,200 to 5,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, mesic Durinodic Xeric Haplocambids

Typical pedon of Catlow very stony loam in an area of Enko-Catlow association, 2 to 20 percent slopes; about 1,000 feet north and 200 feet east of the southwest corner of sec. 8, T. 37 S., R. 32 E.; Square Mountain quadrangle.

A—0 to 3 inches; pale brown (10YR 6/3) very stony loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine vesicular and irregular pores; 20 percent gravel, 10 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

AB—3 to 9 inches; brown (10YR 5/3) very stony sandy clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine vesicular and irregular pores; 15 percent gravel, 5 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.5); clear wavy boundary.

Bw—9 to 22 inches; pale brown (10YR 6/3) extremely stony sandy clay loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine vesicular and irregular pores; 30 percent gravel, 15 percent cobbles, and 25 percent stones; slightly alkaline (pH 7.6); clear wavy boundary.

2Bq—22 to 31 inches; pale brown (10YR 6/3) extremely cobbly loamy coarse sand, dark brown (10YR 3/3) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine, fine, and medium roots; many very fine tubular and irregular pores; few coatings of carbonates on rock fragments; 45 percent gravel, 20 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.6); abrupt wavy boundary.

2C—31 to 60 inches; multicolored extremely cobbly coarse sand, dark grayish brown (10YR 4/2) moist; single grain; loose, nonsticky and nonplastic; few very fine, fine, and medium roots; many very fine and fine irregular pores; few coatings of carbonates on rock fragments; 40 percent gravel, 30 percent cobbles, and 20 percent stones; moderately alkaline (pH 8.0).

Bedrock is at a depth of more than 60 inches. Depth to the hard, firm and brittle layer is 15 to 30 inches. The particle-size control section averages 50 to 80 percent rock fragments, mainly gravel and cobbles, and 7 to 18 percent clay.

The A horizon is gravelly loam, gravelly sandy loam, or very stony loam. It is 15 to 50 percent rock fragments and 15 to 25 percent clay.

The Bw horizon is very cobbly sandy loam, very stony sandy clay loam, extremely stony sandy clay loam, gravelly sandy loam, very gravelly sandy loam, or very gravelly sandy clay loam. It is 35 to 80 percent rock fragments and 15 to 25 percent clay.

The 2Bq horizon is very cobbly loamy sand, extremely cobbly loamy coarse sand, very cobbly sandy loam, very gravelly sandy loam, or extremely gravelly sandy loam. It is 50 to 90 percent rock fragments and 5 to 15 percent clay. It is slightly alkaline or moderately alkaline.

The 2C horizon is extremely cobbly loamy coarse sand, extremely cobbly coarse sand, very gravelly sand, or extremely gravelly sand. It is 50 to 90 percent rock fragments and 0 to 10 percent clay.

Clamp Series

The Clamp series consists of shallow, well drained soils that formed in colluvium over basalt. The soils are on mountains. Slope is 5 to 70 percent. Elevation is 5,200 to 8,600 feet. The mean annual precipitation is 12 to 35 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed Lithic Cryoborolls

Typical pedon of Clamp very stony clay loam in an area of Clamp-Baconcamp-Hackwood complex, 20 to 35 percent north slopes; about 2,400 feet south and 2,400 feet west of the northeast corner of sec. 3, T. 40 S., R. 38 E.; Little Whitehorse Creek quadrangle.

A1—0 to 3 inches; grayish brown (10YR 5/2) very stony clay loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.5); clear smooth boundary.

A2—3 to 8 inches; grayish brown (10YR 5/2) very cobbly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); gradual wavy boundary.

A3—8 to 12 inches; grayish brown (10YR 5/2) very cobbly clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.5); abrupt irregular boundary.

R—12 inches; fractured basalt.

Thickness of the mollic epipedon and depth to bedrock are 4 to 14 inches. The particle-size control section averages 35 to 60 percent rock fragments and 27 to 35 percent clay. The profile is neutral or slightly alkaline.

The upper part of the A horizon is cobbly clay loam, very stony clay loam, or extremely stony clay loam. It is 20 to 70 percent rock fragments. The lower part is 35 to 60 percent rock fragments, mainly cobbles and gravel.

Cleavage Series

The Cleavage series consists of shallow, well drained soils that formed in residuum and colluvium derived from igneous rock. The soils are on mountains. Slope is 20 to 50 percent. Elevation is 5,400 to 6,600 feet. The mean annual precipitation is 12 to 14 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical pedon of Cleavage extremely gravelly loam in Humboldt County, Nevada; about 0.5 mile northeast of Knott Creek Reservoir, in the Pine Forest Range; about 1,600 feet north and 600 feet east of the southwest corner of sec. 4, T. 43 N., R. 28 E.

A—0 to 7 inches; dark grayish brown (10YR 4/2) extremely gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine roots; many very fine tubular pores; 60 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt—7 to 15 inches; brown (10YR 5/3) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and few fine roots; many very fine tubular pores; 30 percent gravel and 25 percent cobbles; common faint clay films on faces of peds; slightly alkaline (pH 7.6); abrupt smooth boundary.

R—15 inches; fractured bedrock.

The mollic epipedon is 7 to 10 inches thick. Depth to bedrock is 14 to 20 inches. The particle-size control section averages 50 to 80 percent rock fragments and 20 to 35 percent clay. The profile is neutral or slightly alkaline.

The Bt horizon is very cobbly clay loam, extremely gravelly clay loam, or very gravelly clay loam.

Cotant Series

The Cotant series consists of shallow, well drained soils that formed in residuum and colluvium derived from tuffaceous sedimentary rock and diatomaceous earth. The soils are hills. Slope is 15 to 30 percent. Elevation is 3,800 to 4,800 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid, shallow Aridic Argixerolls

Typical pedon of Cotant stony loam in an area of Mahoon-Cotant association, 15 to 30 percent slopes; about 2,400 feet south and 2,300 feet east of the northwest corner of sec. 4, T. 22 S., R. 36 E.; Upton Mountain quadrangle.

A—0 to 3 inches; grayish brown (10YR 5/2) stony loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine and few medium roots; many very fine, fine, and medium interstitial pores; 5 percent gravel, 5 percent cobbles, and 5 percent stones; neutral (pH 6.8); clear smooth boundary.

Bt—3 to 13 inches; grayish brown (10YR 5/2) clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium roots; many very fine and fine and common medium interstitial pores;

many faint clay films on faces of peds and lining pores; 5 percent gravel; neutral (pH 7.1); clear smooth boundary.
Cr—13 inches; weathered tuffaceous sedimentary rock.

The mollic epipedon is 10 to 14 inches thick. Thickness of the solum and depth to bedrock are 12 to 20 inches. Depth to the claypan is 2 to 10 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 40 to 50 percent clay.

The A horizon is 15 to 25 percent rock fragments and 18 to 27 percent clay.

The Bt horizon is 5 to 15 percent rock fragments and 40 to 50 percent clay.

Coztur Series

The Coztur series consists of shallow, well drained soils that formed in residuum derived from ashflow tuff, welded tuff, and basalt. The soils are on hills and plateaus. Slope is 2 to 20 percent. Elevation is 4,100 to 5,600 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy, mixed, frigid Lithic Xeric Haplargids

Typical pedon of Coztur sandy loam, 2 to 15 percent slopes, about 1,600 feet east and 1,600 feet north of the southwest corner of sec. 18, T. 39 S., R. 29 E.; Chimney Rock quadrangle.

A1—0 to 3 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; many fine and very fine roots; many very fine and fine vesicular pores; 10 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.
A2—3 to 9 inches; pale brown (10YR 6/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, friable, nonsticky and slightly plastic; many very fine and fine roots; common very fine and fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.
Bt1—9 to 13 inches; brown (10YR 5/3) gravelly sandy clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine, many fine, and few medium roots; common very fine and fine irregular pores; common distinct clay films on faces of peds; 16 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
Bt2—13 to 18 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few very fine, common fine, and few medium roots; common very fine and fine irregular pores; common distinct clay films on faces of peds; 20 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
R—18 inches; ashflow tuff.

Thickness of the solum and depth to bedrock are 14 to 20 inches. The particle-size control section averages 5 to 20 percent rock fragments, mainly gravel, and 20 to 35 percent clay.

The A horizon is sandy loam or very stony loam. It is 0 to 50 percent rock fragments and 12 to 27 percent clay.

The Bt horizon is clay loam, gravelly sandy clay loam, or loam. It is 5 to 20 percent rock fragments and 20 to 35 percent clay. It is slightly alkaline or moderately alkaline.

Crowcamp Series

The Crowcamp series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Vertic Palexerolls

Typical pedon of Crowcamp silty clay loam in an area of Crowcamp-Ausmus-Poujade complex, 0 to 5 percent slopes; about 350 feet south and 400 feet east of the northwest corner of sec. 32, T. 22 S., R. 33 E.; Carson Point quadrangle.

A—0 to 3 inches; gray (10YR 6/1) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many fine and very fine vesicular pores; neutral (pH 7.2); abrupt smooth boundary.

2Bt1—3 to 11 inches; grayish brown (10YR 5/2) clay, very dark brown (10YR 2/2) moist; moderate medium and fine prismatic structure parting to strong medium and fine angular blocky; hard, firm, very sticky and very plastic; many fine roots; common very fine tubular pores; slightly alkaline (pH 7.4); gradual smooth boundary.

2Bt2—11 to 23 inches; dark gray (10YR 4/1) clay, very dark grayish brown (10YR 3/2) moist; moderate fine and medium angular blocky structure; hard, firm, very sticky and very plastic; many fine roots; common very fine tubular pores; few pressure faces; few faint clay films lining pores; slightly alkaline (pH 7.6); clear smooth boundary.

2Bt3—23 to 30 inches; dark gray (10YR 4/1) clay, very dark grayish brown (10YR 3/2) moist; weak medium and fine angular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine and very fine roots; common very fine tubular pores; common pressure faces; few faint clay films lining pores; many white noncalcareous masses; slightly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

3Bkq—30 to 44 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (2.5Y 3/2) moist; weak medium platy structure; hard, very firm and brittle, slightly sticky and slightly plastic; few fine roots; many filaments of carbonates on faces of peds; strongly effervescent; moderately alkaline (pH 8.0); abrupt smooth boundary.

3C1—44 to 53 inches; light brownish gray (2.5Y 6/2) loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; moderately alkaline (pH 8.0); gradual smooth boundary.

4C2—53 to 68 inches; light brownish gray (2.5Y 6/2) very gravelly loam, olive brown (2.5Y 4/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; 40 percent gravel; moderately alkaline (pH 8.0).

The mollic epipedon is 20 to 30 inches thick. Bedrock is at a depth of more than 60 inches. Frequent or rare ponding occurs in spring. A high water table is present in spring. Depth to the hard, brittle layer (3Bkq horizon) is 25 to 40 inches.

The A horizon is loam, silt loam, or silty clay loam with 15 to 30 percent clay. It is neutral or slightly alkaline.

The 2Bt horizon is silty clay or clay with 40 to 55 percent clay. It is slightly alkaline or moderately alkaline.

The 3Bkq and 3C horizons have hue of 10YR or 2.5Y. They are loam or gravelly loam with 0 to 20 percent rock fragments.

The 4C horizon is gravelly loam or very gravelly loam with 20 to 50 percent gravel.

Cumulic Haploxerolls

Cumulic Haploxerolls consists of very deep, somewhat poorly drained soils that formed in alluvium and lacustrine sediment. The soils are on stream terraces and lake plains. Slope is 0 to 3 percent. Elevation is 3,500 to 5,500 feet. The mean annual precipitation is 8 to 16 inches, and the mean annual air temperature is 43 to 49 degrees F.

Taxonomic classification: Cumulic Haploxerolls

Typical pedon of Cumulic Haploxerolls loam in an area of Welch-Roschene-Cumulic Haploxerolls complex, 0 to 3 percent slopes; about 300 feet north and 100 feet west of the southeast corner of sec. 2, T. 22 S., R. 25 E.; Camp Currey Spring quadrangle.

A—0 to 5 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine and very fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; many very fine irregular and tubular pores; slightly alkaline (pH 7.5); clear smooth boundary.

Bw—5 to 25 inches; dark gray (10YR 4/1) loam, very dark gray (10YR 3/1) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, friable, slightly sticky and slightly plastic; many very fine and common fine and medium roots; many very fine tubular pores; slightly alkaline (pH 7.5); gradual smooth boundary.

C1—25 to 40 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; massive; hard, friable, slightly sticky and slightly plastic; common very fine roots; common very fine and fine vesicular pores; common faint and distinct iron concentrations that are brown (7.5YR 4/4) when moist; slightly alkaline (pH 7.8); gradual smooth boundary.

C2—40 to 54 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; massive; hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine and few fine tubular pores; common faint and distinct iron concentrations that are brown (7.5YR 4/4) when moist; slightly alkaline (pH 7.8); clear wavy boundary.

C3—54 to 60 inches; light brownish gray (10YR 6/2) very gravelly sandy loam, dark brown (10YR 3/3) moist; single grain; loose, slightly sticky and nonplastic; few very fine roots; many very fine irregular and tubular pores; 5-millimeter-thick iron concentrations that are brown (7.5YR 4/4) when moist; 50 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6).

The mollic epipedon is 20 to 30 inches thick. Bedrock is at a depth of more than 60 inches. Frequent ponding or flooding occurs in spring. A high water table is present in spring. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 10 to 24 percent clay. The Bw horizon is absent in some pedons.

The A horizon is 20 to 30 inches thick. It is 0 to 5 percent rock fragments and 10 to 25 percent clay.

The C horizon has stratified textures throughout.

Davey Series

The Davey series consists of very deep, somewhat excessively drained soils that formed in alluvium. The soils are on lake terraces. Slope is 0 to 8 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Sandy, mixed, mesic Xeric Haplocambids

Typical pedon of Davey sandy loam, 0 to 8 percent slopes, about 1,200 feet south and 2,400 feet east of the northwest corner of sec. 26, T. 38 S., R. 35 E.; Tumtum Lake quadrangle.

A—0 to 3 inches; grayish brown (10YR 5/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; many very fine and fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.

Bw—3 to 18 inches; grayish brown (10YR 5/2) sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; many very fine and fine irregular and tubular pores; 5 percent gravel; moderately alkaline (pH 8.4); gradual wavy boundary.

Ck1—18 to 34 inches; light brownish gray (10YR 6/2) loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and medium roots; many fine irregular and tubular pores; strongly effervescent with disseminated carbonates; 5 percent gravel; strongly alkaline (pH 9.0); gradual wavy boundary.

Ck2—34 to 60 inches; light brownish gray (10YR 6/2) loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many fine irregular and tubular pores; strongly effervescent with disseminated carbonates; 10 percent gravel; strongly alkaline (pH 9.0).

Bedrock is at a depth of more than 60 inches. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 5 to 10 percent clay. Content of fine sand or coarser material is more than 70 percent, and content of very fine sand is less than 50 percent.

The A horizon is sandy loam or gravelly sandy loam. It is 0 to 30 percent rock fragments.

The Bw horizon is 0 to 10 percent rock fragments. It is slightly alkaline or moderately alkaline.

The Ck horizon is loamy sand or gravelly loamy sand. It is 0 to 30 percent rock fragments. It is slightly alkaline to strongly alkaline.

Defenbaugh Series

The Defenbaugh series consists of very deep, well drained soils that formed in alluvium. The soils are on alluvial fans. Slope is 0 to 4 percent. Elevation is 3,900 to 4,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Typic Haplocambids

Typical pedon of Defenbaugh loam in an area of Outerkirk-Defenbaugh association, 1 to 4 percent slopes; about 200 feet south and 200 feet east of the northwest corner of sec. 17, T. 38 S., R. 35 E.; Fields quadrangle.

A—0 to 5 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; many fine and medium vesicular pores; slightly effervescent with disseminated carbonates; 5 percent gravel; moderately alkaline (pH 8.4); clear smooth boundary.

Bk—5 to 16 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard,

friable, moderately sticky and moderately plastic; many fine roots; many very fine vesicular and irregular pores; slightly effervescent with carbonates segregated in few fine filaments; moderately alkaline (pH 8.3); clear smooth boundary.

Bq—16 to 29 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine vesicular and irregular pores; 5 percent durinodes; slightly alkaline (pH 7.5); clear smooth boundary.

2BC—29 to 47 inches; light yellowish brown (10YR 6/4) very fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; soft, friable, slightly sticky and slightly plastic; many fine roots; many very fine irregular pores; slightly alkaline (pH 7.4); clear smooth boundary.

2C1—47 to 53 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; common fine roots; many very fine and fine irregular pores; moderately alkaline (pH 8.0); clear smooth boundary.

2C2—53 to 60 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine and fine irregular pores; moderately alkaline (pH 8.0).

Depth to the 2BC horizon is 25 to 45 inches. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 0 to 5 percent rock fragments, mainly gravel, and 18 to 35 percent clay.

The A horizon has hue of 7.5YR or 10YR.

The Bk and Bq horizons have hue of 7.5YR or 10YR. They are loam or clay loam. They are 0 to 5 percent rock fragments and 18 to 35 percent clay. They are slightly alkaline or moderately alkaline.

The 2BC and 2C horizons are very fine sandy loam, sandy loam, or loam. They are 0 to 5 percent rock fragments and 15 to 25 percent clay. They are slightly alkaline or moderately alkaline.

Degarmo Series

The Degarmo series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, frigid Cumulic Endoaquolls

Typical pedon of Degarmo silt loam in an area of Fury-Degarmo complex, 0 to 2 percent slopes; about 500 feet north and 2,400 feet east of the southwest corner of sec. 32, T. 29 S., R. 33 E.; Diamond quadrangle.

A—0 to 3 inches; dark gray (10YR 4/1) silt loam, very dark gray (10YR 3/1) moist; moderate fine and medium granular structure; hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; many fine and very fine irregular and tubular pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

AB—3 to 10 inches; dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate medium prismatic structure parting to moderate medium subangular blocky; hard, firm, very sticky and very plastic; many very fine, fine, and medium roots; many very fine and common fine tubular pores; slightly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.

Bw1—10 to 21 inches; dark gray (10YR 4/1) clay, very dark gray (10YR 3/1) moist; strong fine and medium prismatic structure parting to strong fine and medium angular blocky; very hard, very firm, very sticky and very plastic; many very fine, fine, and medium roots; many very fine and common fine tubular pores; slightly alkaline (pH 7.8); gradual smooth boundary.

Bw2—21 to 28 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong fine prismatic structure parting to strong fine angular blocky; hard, firm, very sticky and very plastic; common very fine, fine, and medium roots; many very fine and common fine tubular pores; few fine distinct yellowish brown (10YR 5/4) iron concentrations on faces of peds; slightly alkaline (pH 7.8); gradual smooth boundary.

BC—28 to 34 inches; grayish brown (10YR 5/2) sandy clay loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure; hard, firm, very sticky and moderately plastic; few very fine, fine, and medium roots; many very fine and common fine tubular pores; few fine faint brown (10YR 5/3) iron concentrations on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

2C—34 to 60 inches; grayish brown (10YR 5/2) very gravelly sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; many very fine, fine, and medium irregular pores; common fine distinct iron concentrations that are brown (7.5YR 4/4) and strong brown (7.5YR 5/6) when moist; common manganese concentrations on coarse fragments; 50 percent gravel; slightly alkaline (pH 7.8).

Thickness of the mollic epipedon and depth to the very gravelly substratum are 24 to 35 inches. Bedrock is at a depth of more than 60 inches. Rare ponding occurs in spring. A high water table is present in spring and early in summer. The upper part of the particle-size control section averages 25 to 35 percent clay, and the lower part averages 10 to 20 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 0 or 1 moist or dry. It has a calcium carbonate equivalent of 0 to 1 percent. It is slightly alkaline or moderately alkaline.

The Bw horizon is 25 to 45 percent clay. It is clay loam, loam, or clay.

The 2C horizon is 35 to 60 percent rock fragments and 10 to 20 percent clay.

The Degarmo soils in this survey area are a taxadjunct to the Degarmo series because the family particle-size class is fine-loamy.

Dentdraw Series

The Dentdraw series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Elevation is 4,090 to 4,105 feet. Slope is 0 to 2 percent. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed (calcareous), frigid Fluvaquentic Endoaquolls

Typical pedon of Dentdraw silt loam in an area of Thenarrows-Duckclub-Dentdraw complex, 0 to 2 percent slopes; about 2,800 feet south and 400 feet east of the northwest corner of sec. 4, T. 26 S., R. 38 E.; Malheur Lake West quadrangle.

Akn1—0 to 6 inches; very dark grayish brown (2.5Y 3/2) silt loam, grayish brown (2.5Y 5/2) dry; weak medium and thin platy structure; hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; common very fine tubular pores; strongly effervescent; very strongly alkaline (pH 9.2); clear smooth boundary.

Akn2—6 to 9 inches; dark olive gray (5Y 3/2) fine sandy loam, gray (5Y 5/1) dry; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.
Akn3—9 to 11 inches; dark olive gray (5Y 3/2) silt loam, gray (5Y 5/1) dry; strong fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and few fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.
Akn4—11 to 18 inches; dark olive gray (5Y 3/2) fine sandy loam, gray (5Y 5/1) dry; weak medium and fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine and few fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); abrupt smooth boundary.
2Bkn—18 to 27 inches; light olive gray (5Y 6/2) clay loam, light gray (5Y 7/1) dry; strong medium and fine prismatic structure; very hard, firm, very sticky and very plastic; common very fine roots; common very fine and few fine tubular pores; strongly effervescent; strongly alkaline (pH 9.0); gradual smooth boundary.
3C1—27 to 42 inches; light olive brown (2.5Y 5/3) sandy loam, light gray (2.5Y 7/2) dry; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; common very fine tubular pores; common fine rounded calcium carbonate concentrations; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.
3C2—42 to 52 inches; light olive brown (2.5Y 5/3) loamy fine sand, light brownish gray (2.5Y 6/2) dry; massive; soft, very friable, nonsticky and nonplastic; few very fine irregular and tubular pores; common coarse rounded carbonate concentrations; strongly effervescent; strongly alkaline (pH 9.0); clear smooth boundary.
3C3—52 to 60 inches; olive brown (2.5Y 4/3) loamy fine sand, light gray (2.5Y 7/2) dry; massive; soft, very friable, nonsticky and nonplastic; few very fine irregular and tubular pores; common fine filaments of calcium carbonate; strongly effervescent; strongly alkaline (pH 8.8).

The mollic epipedon is 10 to 20 inches thick. The solum is 25 to 40 inches thick. It has a sodium adsorption ratio of 13 to 25. The profile is strongly alkaline or very strongly alkaline. Frequent ponding occurs in spring. A high water table is present late in winter and in spring and summer. The profile typically has hue of 5Y or 2.5Y, but hue ranges to 10YR.

The A horizon has a calcium carbonate equivalent of 5 to 10 percent. It is silt loam and fine sandy loam.

The 2Bkn horizon has value of 7 or 8 dry and 5 or 6 moist, and it has chroma of 1 to 3. It is clay loam or sandy clay loam with 20 to 30 percent clay. It has a calcium carbonate equivalent of 2 to 5 percent.

The 3C horizon has value of 6 to 8 dry and 4 to 6 moist, and it has chroma of 1 to 3. It is sandy loam over loamy fine sand or loamy sand with 5 to 18 percent clay. The sodium adsorption ratio is 2 to 15.

Deppy Series

The Deppy series consists of soils that are shallow to a duripan and are well drained. The soils formed in alluvium. They are on old lake terraces. Slope is 5 to 15 percent. Elevation is 4,200 to 5,000 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, mesic, shallow Argidic Argidurids

Typical pedon of Deppy very cobbly loam in an area of Deppy-Tumtum complex, 5 to 15 percent slopes; about 2,300 feet north and 600 feet west of the southeast corner of sec. 33, T. 39 S., R. 36 E.; Trout Creek Canyon quadrangle.

A1—0 to 2 inches; very pale brown (10YR 7/3) very cobbly loam, yellowish brown (10YR 5/4) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; many fine and medium roots; many fine and medium vesicular pores; 15 percent gravel, 30 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—2 to 6 inches; very pale brown (10YR 7/3) very cobbly loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; many fine and medium vesicular pores; 15 percent gravel and 30 percent cobbles; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bt—6 to 15 inches; very pale brown (10YR 7/4) clay loam, dark yellowish brown (10YR 4/6) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and medium roots; many very fine irregular pores; common faint clay films on faces of peds and lining pores; moderately alkaline (pH 8.4); abrupt smooth boundary.

Bkqm—15 to 21 inches; fractured, platy, strongly cemented duripan; strongly effervescent; abrupt wavy boundary.

2Ck—21 to 28 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine and fine irregular pores; violently effervescent with disseminated carbonates; 40 percent gravel; strongly alkaline (pH 8.6); clear smooth boundary.

2Ckq—28 to 47 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine irregular pores; 30 percent durinodes; violently effervescent with disseminated carbonates; 30 percent gravel; strongly alkaline (pH 8.5); clear smooth boundary.

2C´k—47 to 60 inches; very pale brown (10YR 7/4) gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine and fine irregular pores; violently effervescent with disseminated carbonates; 25 percent gravel; moderately alkaline (pH 8.0).

Bedrock is at a depth of more than 60 inches. Thickness of the solum and depth to the duripan are 10 to 20 inches. Calcium carbonate is at a depth of 8 to 20 inches. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 27 to 35 percent clay.

The A horizon is very cobbly loam or very gravelly loam. It is 35 to 55 percent rock fragments and 20 to 27 percent clay.

The Bt horizon is 0 to 10 percent rock fragments and 27 to 35 percent clay.

The Bkqm horizon is 4 to 13 inches thick.

The 2Ck horizon is gravelly sandy loam or very gravelly sandy loam. It is 20 to 45 percent rock fragments and 5 to 15 percent clay. It is moderately alkaline or strongly alkaline.

Dickle Series

The Dickle series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt, andesite, rhyolite, and welded tuff. The soils are on mountains and hills. Slope is 3 to 35 percent. Elevation is 6,000 to 7,800 feet. The

mean annual precipitation is 12 to 35 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy, mixed Lithic Cryoborolls

Typical pedon of Dickle very cobbly clay loam, 3 to 12 percent slopes, about 1,500 feet south and 2,000 feet east of the northwest corner of sec. 11, T. 40 S., R. 37 E., "The V" quadrangle.

A—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; many very fine, fine, medium, and coarse roots; many very fine and fine tubular pores; 10 percent gravel, 20 percent cobbles, and 10 percent stones; neutral (pH 7.0); gradual wavy boundary.

BA—3 to 6 inches; grayish brown (10YR 5/2) clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, moderately sticky and slightly plastic; many very fine, fine, medium, and coarse roots; many very fine and fine tubular pores; 5 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear wavy boundary.

Bw—6 to 14 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, moderately sticky and slightly plastic; common fine and medium roots; many very fine and fine tubular pores; 5 percent gravel and 5 percent cobbles; neutral (pH 7.0); clear irregular boundary.

R—14 inches; basalt.

The mollic epipedon is 10 to 20 inches thick. Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 5 to 25 percent rock fragments, mainly gravel and cobbles, and 27 to 35 percent clay. The profile is slightly acid or neutral.

The A horizon is 35 to 50 percent rock fragments.

The BA and Bw horizons are clay loam or cobbly clay loam. They are 0 to 20 percent rock fragments.

Dixon Series

The Dixon series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 0 to 15 percent. Elevation is 4,000 to 4,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, mesic Xeric Haplocambids

Typical pedon of Dixon gravelly sandy clay loam, 3 to 15 percent slopes, about 1,400 feet south and 1,400 feet west of the northeast corner of sec. 7, T. 39 S., R. 35 E.; Ladycomb Peak quadrangle.

A—0 to 2 inches; pale brown (10YR 6/3) gravelly sandy clay loam, dark brown (7.5YR 3/2) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine vesicular and irregular pores; 25 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—2 to 8 inches; light yellowish brown (10YR 6/4) clay loam, dark brown (7.5YR 3/2) moist; weak medium subangular blocky structure; soft, very friable,

moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; many very fine vesicular and irregular pores; slightly effervescent with disseminated carbonates; 5 percent gravel; moderately alkaline (pH 8.3); clear smooth boundary.

Bk1—8 to 18 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; many very fine irregular pores; strongly effervescent with few fine filaments and few irregularly shaped soft masses of carbonates; 20 percent gravel; moderately alkaline (pH 8.4); gradual smooth boundary.

Bk2—18 to 35 inches; pale brown (10YR 6/3) sandy clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores; violently effervescent with many fine filaments and many irregularly shaped soft masses of carbonates; 10 percent gravel; moderately alkaline (pH 8.4); clear irregular boundary.

2C1—35 to 46 inches; light yellowish brown (10YR 6/4) very gravelly loamy sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; common fine irregular pores; slightly effervescent with disseminated carbonates; 45 percent gravel; moderately alkaline (pH 8.2); gradual wavy boundary.

2C2—46 to 60 inches; very pale brown (10YR 7/3) very gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; massive; very hard, extremely firm, slightly sticky and slightly plastic; few very fine roots; few fine irregular pores; slightly effervescent with disseminated carbonates; 40 percent gravel; moderately alkaline (pH 8.2).

Depth to sand and gravel (2C horizon) is 30 to 40 inches. Bedrock is at a depth of more than 60 inches. The upper part of the particle-size control section averages 5 to 25 percent rock fragments, mainly gravel, and 20 to 35 percent clay. The lower part averages 40 to 70 percent rock fragments, mainly gravel, and 0 to 10 percent clay.

The A horizon has hue of 10YR or 7.5YR and value of 6 or 7 dry and 3 or 4 moist. It is gravelly fine sandy loam and gravelly sandy clay loam. It is 0 to 30 percent rock fragments and 10 to 27 percent clay. The horizon is 1 to 2 percent organic matter. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 0 to 13.

The Bk horizon has hue of 10YR or 7.5YR. It is clay loam, sandy clay loam, or gravelly sandy clay loam. It is 5 to 25 percent rock fragments. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 0 to 13.

The 2C horizon has value of 3 or 4 moist. It is very gravelly loamy sand, very gravelly sandy loam, or extremely gravelly loamy sand. It is 40 to 70 percent rock fragments.

Dogmountain Series

The Dogmountain series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in volcanic ash and cinders derived from mixed igneous rock. They are on hills. Slopes 4 to 20 percent. Elevation is 4,150 to 4,500 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy-skeletal, frigid Vitrixerandic Haplodurids

Typical pedon of Dogmountain gravelly loam, 4 to 20 percent slopes, about 150 feet west and 1,050 feet south of the northeast corner of sec. 11, T. 26 S., R. 30 E.; Northeast Harney Lake quadrangle.

A1—0 to 3 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR

3/2) moist; weak medium, fine, and very fine subangular blocky structure; soft, very friable, slightly sticky and nonplastic; common very fine roots; many very fine interstitial pores; 20 percent gravel-sized cinders; slightly alkaline (pH 7.4); clear smooth boundary.

A2—3 to 9 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium, fine, and very fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; common very fine, fine, and medium roots; many very fine and fine tubular pores; 25 percent gravel-sized cinders; moderately alkaline (pH 8.1); clear smooth boundary.

Bw1—9 to 12 inches; light gray (10YR 7/2) very gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine and common very fine and medium roots; many very fine tubular pores; 50 percent gravel-sized cinders; moderately alkaline (pH 8.4); gradual smooth boundary.

Bw2—12 to 21 inches; very pale brown (10YR 8/3) extremely gravelly loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; many fine and common very fine and medium roots; common very fine tubular pores; 70 percent gravel-sized cinders; strongly effervescent with disseminated carbonates; moderately alkaline (pH 8.4); abrupt wavy boundary.

Bkqm—21 to 30 inches; very pale brown (10YR 8/2) indurated duripan, pale brown (10YR 6/3) moist; massive; very hard, very rigid; 2-millimeter-thick coating of opal on top; 70 percent gravel-sized cinders; strongly effervescent with disseminated carbonates; abrupt irregular boundary.

BCk—30 to 60 inches; black (10YR 2/1) gravel-sized cinders; few 3-inch-wide channels with soil material and few fine roots; single grain; loose, nonsticky and nonplastic; common strongly effervescent carbonate concentrations on gravel; moderately alkaline (pH 8.2).

Depth to the duripan is 20 to 30 inches. Depth to bedrock is more than 60 inches. The particle-size control section averages 10 to 18 percent clay and 50 to 70 percent gravel-sized cinders.

The A horizon has value of 3 to 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is 15 to 25 percent gravel-sized cinders and 30 to 60 percent volcanic ash.

The Bw horizon has value of 6 to 8 dry and 3 to 5 moist, and it has chroma of 2 or 3 dry or moist. It is 50 to 70 percent gravel-sized cinders and 30 to 60 percent volcanic ash.

The Bkqm horizon is 6 to 18 inches thick. It is 65 to 80 percent gravel-sized cinders.

The BCk horizon is 95 to 100 percent gravel-sized cinders.

Doubleo Series

The Doubleo series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,100 to 4,200 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey over loamy, montmorillonitic (calcareous), frigid Fluvaquentic Vertic Endoaquolls

Typical pedon of Doubleo loam in an area of Skunkfarm-Mcbain-Doubleo complex, 0 to 2 percent slopes; about 1,570 feet west and 2,350 feet south of the northeast corner of sec. 28, T. 27 S., R. 31 E.; Coyote Buttes quadrangle.

Oi—1 inch to 0; mat of roots and leaves.

Ak—0 to 3 inches; dark grayish brown (10YR 4/2) loam, very dark grayish brown (10YR 3/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine interstitial pores; strongly effervescent with few distinct masses of calcium carbonate; moderately alkaline (pH 8.4); clear wavy boundary.

Bk—3 to 10 inches; dark gray (10YR 4/1) silty clay, very dark gray (10YR 3/1) moist; moderate fine and very fine subangular blocky structure; hard, very firm, slightly sticky and very plastic; common very fine and fine and few coarse roots; few very fine tubular pores; slightly effervescent with disseminated carbonates on faces of peds; moderately alkaline (pH 8.4); clear wavy boundary.

Bkss—10 to 20 inches; dark grayish brown (10YR 4/2) clay, dark gray (10YR 4/1) moist; strong fine and medium subangular blocky structure; extremely hard, rigid, moderately sticky and very plastic; few very fine and fine roots; few very fine tubular pores; common continuous distinct intersecting slickensides; slightly effervescent with disseminated carbonates on faces of peds; common fine distinct iron concentrations that are brown (7.5YR 4/4) when moist; moderately alkaline (pH 8.2); gradual wavy boundary.

B´k—20 to 28 inches; gray (10YR 5/1) clay loam, dark gray (10YR 4/1) moist; moderate fine and medium subangular blocky structure; very hard, extremely firm, moderately sticky and very plastic; few very fine roots; common very fine tubular pores; strongly effervescent with common fine masses of calcium carbonate; common fine distinct iron concentrations that are brown (7.5YR 4/4) when moist; moderately alkaline (pH 8.0); clear wavy boundary.

2C1—28 to 45 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; common very fine tubular pores; slightly effervescent with disseminated carbonates; common fine distinct iron concentrations that are brown (7.5YR 4/4) when moist; slightly alkaline (pH 7.8); gradual wavy boundary.

2C2—45 to 60 inches; pale brown (10YR 6/3) loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, very friable, moderately sticky and slightly plastic; common very fine tubular pores; slightly effervescent with disseminated carbonates; few medium distinct iron concentrations that are brown (7.5YR 4/4) when moist; slightly alkaline (pH 7.8).

The solum is 40 to 60 inches thick. The upper part of the particle-size control section is more than 1 percent organic matter throughout. The lower part of the particle-size control section and the substratum have an irregular decrease in organic matter. The mollic epipedon is 10 to 20 inches thick. The upper part of the particle-size control section averages 35 to 50 percent clay, and the lower part averages 10 to 20 percent clay. The profile is calcareous throughout. Frequent ponding occurs in spring and summer. A high water table is present in spring and summer. The profile is slightly alkaline or moderately alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 1 or 2 dry or moist.

The Bk horizon is silty clay or silty clay loam with 35 to 50 percent clay.

The Bkss horizon is silty clay or clay with 40 to 60 percent clay.

The 2C1 horizon has value of 5 to 7 dry. It is fine sandy loam or silt loam with 5 to 15 percent clay.

The 2C2 horizon is loam or silt loam with 15 to 20 percent clay.

Doyn Series

The Doyn series consists of very shallow, well drained soils that formed in residuum and colluvium derived from basalt, welded tuff, rhyolite, and andesite. The

soils are on hills and plateaus. Slope is 2 to 30 percent. Elevation is 3,900 to 6,000 feet. The mean annual precipitation is 10 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Loamy, mixed, frigid Lithic Haploxerolls

Typical pedon of Doyn very stony loam, 2 to 20 percent slopes, about 2,000 feet north and 400 feet west of the southeast corner of sec. 21, T. 22 S., R. 34 E.; Stinkingwater Pass quadrangle.

A1—0 to 2 inches; brown (10YR 5/3) very stony loam, dark brown (10YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine roots; common very fine vesicular pores; 10 percent gravel, 20 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.8); clear smooth boundary.

A2—2 to 8 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate fine and medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots and few medium roots; common very fine and fine irregular pores; 10 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

R—8 inches; basalt.

Thickness of the mollic epipedon and depth to bedrock are 4 to 10 inches.

The upper part of the A horizon is very stony loam or sandy clay loam with 10 to 50 percent rock fragments. It is neutral or slightly alkaline. The lower part is cobbly loam, sandy clay loam, or loam with 5 to 35 percent rock fragments. It is slightly alkaline or moderately alkaline.

Drewsey Series

The Drewsey series consists of very deep, well drained soils that formed in eolian material and colluvium derived from tuffaceous sedimentary rock. The soils are on hills. Slope is 1 to 20 percent. Elevation is 3,400 to 4,000 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Xeric Haplocambids

Typical pedon of Drewsey very fine sandy loam, 2 to 20 percent slopes, about 200 feet north and 2,500 feet east of the southwest corner of sec. 13, T. 20 S., R. 35 E.; Drinkwater Pass quadrangle.

A—0 to 3 inches; brown (10YR 5/3) very fine sandy loam, dark brown (10YR 4/3) moist; weak medium platy structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

Bw1—3 to 14 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and few very fine roots; few fine and very fine tubular pores; 5 percent gravel; slightly alkaline (pH 7.4); gradual wavy boundary.

Bw2—14 to 32 inches; light yellowish brown (10YR 6/4) fine sandy loam, dark yellowish brown (10YR 4/4) moist; weak coarse prismatic structure; slightly hard, friable, nonsticky and nonplastic; common fine and very fine roots; few fine and

very fine irregular pores; 5 percent gravel; slightly alkaline (pH 7.6); diffuse irregular boundary.

Bk—32 to 62 inches; pale brown (10YR 6/3) fine sandy loam, dark brown (10YR 4/3) moist; weak coarse prismatic structure; hard, friable, nonsticky and nonplastic; few medium and fine and common very fine roots; few fine and very fine irregular pores; strongly effervescent; calcium carbonate lining pores; moderately alkaline (pH 8.0).

Bedrock is at a depth of more than 60 inches. Depth to carbonates is 20 to 35 inches. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 10 to 18 percent clay.

The A horizon is very fine sandy loam or very cobbly sandy loam. It is neutral or slightly alkaline.

The Bw horizon is very fine sandy loam, fine sandy loam, or loam.

The Bk horizon is very fine sandy loam, fine sandy loam, or loam. It is slightly alkaline or moderately alkaline. The calcium carbonate equivalent is 1 to 5 percent.

Droval Series

The Droval series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 3 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Sodic Aquicambids

Typical pedon of Droval loam, 0 to 3 percent slopes, about 2,100 feet north and 2,000 feet west of the southeast corner of sec. 19, T. 37 S., R. 34 E.; Borax Lake quadrangle.

Aknz—0 to 4 inches; light brownish gray (10YR 6/2) loam, dark brown (10YR 3/3) moist; moderate medium platy structure; soft, very friable, moderately sticky and slightly plastic; many fine and medium roots; many very fine and fine vesicular pores; strongly effervescent with disseminated carbonates; 2 percent calcium carbonate equivalent; electrical conductivity is 10 millimhos per centimeter; sodium adsorption ratio is 110; very strongly alkaline (pH 9.6); clear wavy boundary.

Bnz1—4 to 11 inches; grayish brown (10YR 5/2) silty clay, brown (10YR 4/3) moist; weak fine subangular blocky structure parting to moderate medium granular; soft, very friable, very sticky and very plastic; many fine and medium roots; many very fine and fine tubular and irregular pores; electrical conductivity is 23 millimhos per centimeter; sodium adsorption ratio is 70; moderately alkaline (pH 8.3); clear wavy boundary.

Bnz2—11 to 22 inches; light brownish gray (10YR 6/2) silty clay, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, very sticky and very plastic; many fine and medium roots; many very fine and fine tubular and irregular pores; few medium distinct iron concentrations that are yellowish brown (10YR 5/6) when moist; electrical conductivity is 23 millimhos per centimeter; sodium adsorption ratio is 70; moderately alkaline (pH 8.3); clear wavy boundary.

Bnyz—22 to 32 inches; grayish brown (10YR 5/2) clay, dark brown (10YR 3/3) moist; strong fine angular blocky structure; hard, firm, very sticky and very plastic; common fine and medium roots; many very fine and fine tubular and irregular pores; few fine distinct iron concentrations that are yellowish brown (10YR 5/6) when moist; electrical conductivity is 22 millimhos per centimeter; sodium

adsorption ratio is 63; common fine filaments and crystals of gypsum; slightly acid (pH 6.4); clear wavy boundary.

Cnyz1—32 to 46 inches; pale brown (10YR 6/3) silty clay, brown (10YR 5/3) moist; massive; hard, firm, very sticky and very plastic; common fine and medium roots; many very fine irregular pores; common fine prominent iron concentrations that are brownish yellow (10YR 6/6) when moist; electrical conductivity is 22 millimhos per centimeter; sodium adsorption ratio is 57; common fine filaments and crystals of gypsum; slightly acid (pH 6.1); gradual wavy boundary.

Cnyz2—46 to 61 inches; pale brown (10YR 6/3) clay, brown (10YR 5/3) moist; massive; hard, firm, very sticky and very plastic; few very fine and fine roots; many very fine irregular pores; common fine prominent iron concentrations that are brownish yellow (10YR 6/6) when moist; electrical conductivity is 22 millimhos per centimeter; sodium adsorption ratio is 57; common fine filaments and crystals of gypsum; slightly acid (pH 6.1); abrupt smooth boundary.

The solum is 24 to 40 inches thick. Fractured lacustrine sediment is at a depth of more than 60 inches. Frequent ponding occurs in spring. A high water table is present in winter and spring. The particle-size control section averages 40 to 60 percent clay.

The Aknz horizon is 15 to 27 percent clay. The calcium carbonate equivalent is 1 to 2 percent. The sodium adsorption ratio is 75 to 120. Electrical conductivity is 8 to 16 millimhos per centimeter.

The Bnz horizon is 40 to 50 percent clay. Electrical conductivity is 16 to 32 millimhos per centimeter. The sodium adsorption ratio is 45 to 80.

The Bnyz and Cnyz horizons are silty clay and clay and are 40 to 60 percent clay. Electrical conductivity is 16 to 32 millimhos per centimeter. The sodium adsorption ratio is 45 to 80. The content of gypsum averages 0 to 4 percent.

Duckclub Series

The Duckclub series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,090 to 4,105 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Coarse-loamy, mixed, frigid Sodic Aquicambids

Typical pedon of Duckclub loamy fine sand in an area of Thenarrows-Duckclub complex, 0 to 1 percent slopes; about 2,800 feet south and 700 feet east of the northwest corner of sec. 4, T. 26 S., R. 32 E.; The Narrows quadrangle.

A1—0 to 5 inches; dark grayish brown (2.5Y 4/2) loamy fine sand, grayish brown (2.5Y 5/2) dry; moderate coarse granular structure parting to very fine granular; loose, friable, nonsticky and nonplastic; many very fine, fine, and medium roots; many very fine, fine, medium, and coarse irregular pores; strongly effervescent with disseminated carbonates; strongly alkaline (pH 9.0); gradual smooth boundary.

A2—5 to 27 inches; dark grayish brown (2.5Y 4/2) loamy fine sand, light brownish gray (2.5Y 6/2) dry; weak medium and fine subangular blocky structure; loose, friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; common faint coatings of organic matter on faces of peds; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); gradual smooth boundary.

2Bw1—27 to 32 inches; dark grayish brown (2.5Y 4/2) fine sandy loam, light gray (2.5Y 7/2) dry; weak coarse and medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; common very fine and fine roots;

common very fine and fine tubular pores; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); abrupt wavy boundary.

2Bw2—32 to 41 inches; light brownish gray (2.5Y 6/2) sandy clay loam, light gray (2.5Y 7/2) dry; weak medium prismatic structure; very hard, firm, very sticky and very plastic; common very fine and fine roots; common very fine tubular pores; common faint coatings lining pores; common fine faint depletions that are gray (5Y 6/1) when moist and are on faces of peds; strongly effervescent with disseminated carbonates; 9 percent calcium carbonate equivalent; very strongly alkaline (pH 9.2); gradual smooth boundary.

2Bkq1—41 to 51 inches; light brownish gray (2.5Y 6/2) loam, light gray (2.5Y 7/2) dry; weak fine prismatic structure; hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; common very fine tubular and irregular pores; few fine distinct iron concentrations that are dark brown (7.5YR 4/4) when moist; 30 percent durinodes; common 1- to 5-millimeter-wide filaments of carbonates; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); clear wavy boundary.

2Bkq2—51 to 63 inches; olive brown (2.5Y 4/3) loamy fine sand, light brownish gray (2.5Y 6/2) dry; massive; slightly hard, firm, nonsticky and nonplastic; few very fine roots; few very fine tubular pores; common fine faint iron concentrations that are dark brown (10YR 4/3) when moist; 60 percent durinodes; common 5- to 10-millimeter-wide filaments of carbonates lining pores; strongly effervescent; strongly alkaline (pH 9.0).

Depth to bedrock is more than 60 inches. The particle-size control section averages 10 to 18 percent clay. Depth to durinodes or the duric layer is 45 to 60 inches or more. Rare ponding occurs in spring. A high water table is present in spring and early in summer. The profile has a calcium carbonate equivalent of 5 to 10 percent throughout.

The A horizon has value of 5 or 6 dry and 3 to 5 moist, and it has chroma of 1 or 2 moist or dry. It is moderately alkaline to very strongly alkaline. The sodium adsorption ratio is 13 to 30.

The Bw horizon has hue of 10YR, 2.5Y, or 5Y, value of 6 to 8 dry and 4 to 6 moist, and chroma of 1 or 2 moist or dry. It is sandy loam, fine sandy loam, or sandy clay loam with 10 to 30 percent clay. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 13 to 30.

The 2Bkq horizon is loamy fine sand, sandy loam, or loam with 5 to 20 percent clay. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 5 to 15.

Duff Series

The Duff series consists of deep, well drained soils that formed in colluvium and loess over basalt and andesite. The soils are on mountains. Slope is 2 to 80 percent. Elevation is 6,000 to 9,200 feet. The mean annual precipitation is 12 to 35 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Fine-loamy, mixed Pachic Cryoborolls

Typical pedon of Duff loam in an area of Duff-Clamp complex, 20 to 40 percent north slopes, about 2,400 feet south and 500 feet west of the northeast corner of sec. 33, T. 39 S., R. 34 E.; Ladycomb Peak quadrangle.

A1—0 to 8 inches; very dark grayish brown (10YR 3/2) loam, black (10YR 2/1) moist; weak medium subangular blocky structure; soft, very friable, moderately sticky and slightly plastic; common very fine, fine, medium, and coarse roots; many fine tubular and irregular pores; neutral (pH 7.0); gradual wavy boundary.

A2—8 to 24 inches; very dark grayish brown (10YR 3/2) loam, very dark brown (10YR 2/2) moist; weak medium and coarse subangular blocky structure; soft, very friable, moderately sticky and slightly plastic; common very fine, fine, medium, and coarse roots; many fine tubular and irregular pores; neutral (pH 7.0); gradual wavy boundary.
2A—24 to 43 inches; dark brown (10YR 3/3) very gravelly loam, very dark brown (10YR 2/2) moist; massive; soft, very friable, moderately sticky and slightly plastic; few very fine and fine and common coarse roots; many fine tubular and irregular pores; 30 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); abrupt irregular boundary.
2R—43 inches; fractured basalt.

The mollic epipedon is 16 to 40 inches thick. The depth to bedrock is 40 to 60 inches. The particle-size control section averages 15 to 35 percent rock fragments, mainly gravel and cobbles, and 18 to 27 percent clay.

The A1 horizon is loam or very stony loam. It is 0 to 40 percent rock fragments and 18 to 27 percent clay.

The A2 horizon is loam. It is 0 to 15 percent rock fragments and 18 to 27 percent clay.

The 2A horizon is gravelly loam or very gravelly loam. It is 20 to 50 percent rock fragments and 18 to 27 percent clay.

Edemaps Series

The Edemaps series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in old alluvium and colluvium over welded tuff, basalt, and andesite (fig. 14). They are on plateaus and hills. Slope is 2 to 20 percent. Elevation is 4,200 to 5,700 feet. The mean annual precipitation is 12 to 14 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Argiduridic Durixerolls

Typical pedon of Edemaps cobbly clay loam in an area of Edemaps-Carryback association, 2 to 10 percent slopes; about 1,600 feet north and 1,900 feet east of the southwest corner of sec. 28, T. 38 S., R. 34 E.; Ladycomb Peak quadrangle.

A—0 to 7 inches; grayish brown (10YR 5/2) cobbly clay loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine and fine vesicular and irregular pores; 10 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.8); clear smooth boundary.
Bt1—7 to 10 inches; dark brown (10YR 4/3) clay, very dark brown (10YR 2/2) moist; weak medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine roots; common fine and medium vesicular and irregular pores; few prominent clay films on faces of peds and lining pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
Bt2—10 to 18 inches; brown (7.5YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common medium roots; common fine irregular and tubular pores; common prominent clay films on faces of peds and lining pores; 10 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
2Bt3—18 to 25 inches; yellowish brown (10YR 5/6) very cobbly clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common medium roots; common fine irregular and tubular pores; few faint clay films on faces of peds;

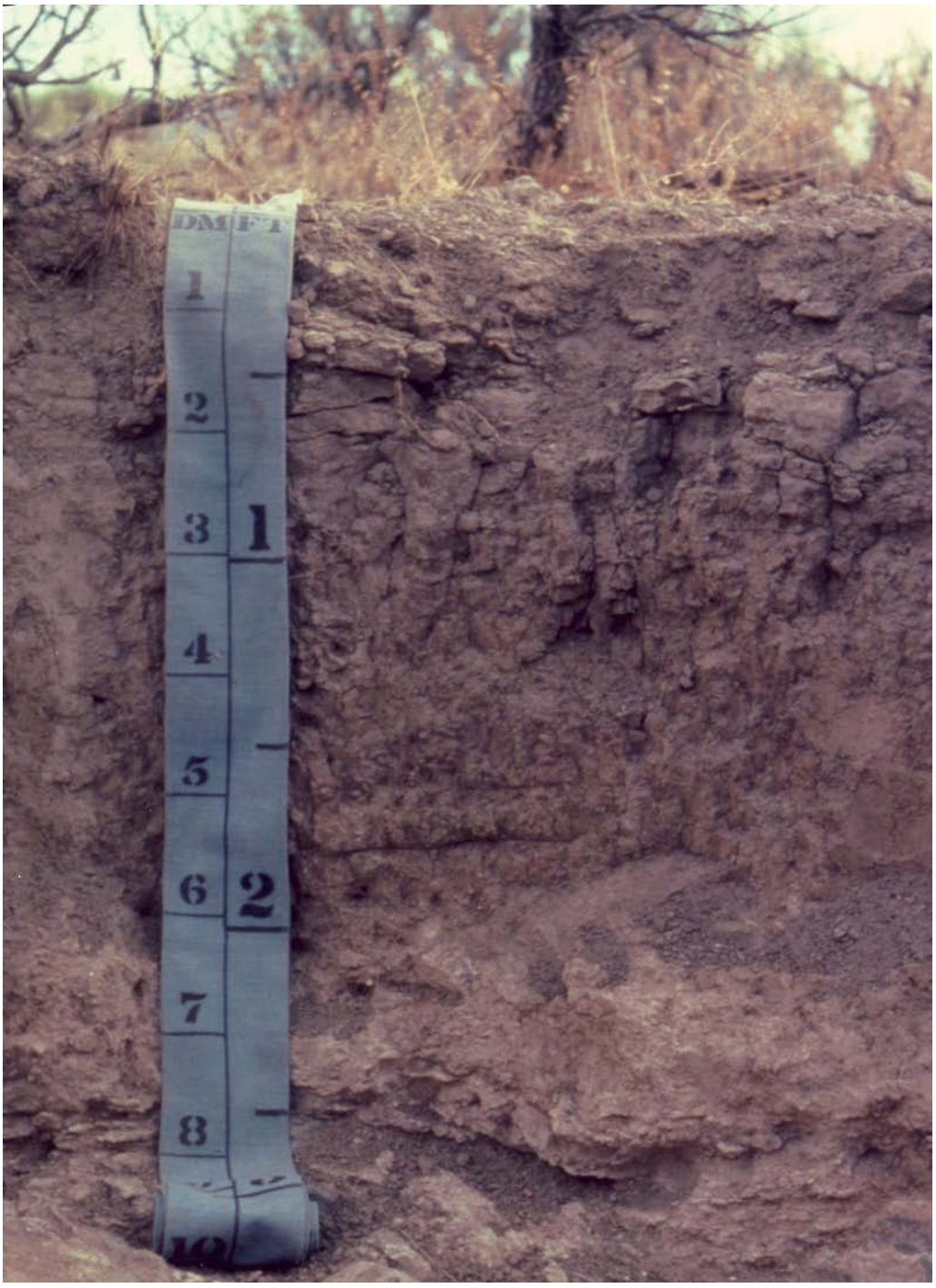


Figure 14.—Typical profile of an Edemaps soil. A duripan formed between depths of 24 and 38 inches and is underlain by basalt.

25 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.8); clear wavy boundary.

2Bkqm—25 to 30 inches; indurated duripan; very rigid; violently effervescent; abrupt wavy boundary.

2R—30 inches; fractured basalt.

The mollic epipedon is 7 to 12 inches thick. Thickness of the solum and depth to the duripan are 20 to 35 inches. Depth to bedrock is 24 to 40 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel and cobbles, and 35 to 45 percent clay.

The A horizon is has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is loam or cobbly clay loam with 20 to 35 percent clay.

The Bt horizon has hue of 7.5YR and 10YR, value of 4 to 6 dry and 2 to 4 moist, and chroma of 3 to 6 dry and 2 to 4 moist. It is clay, cobbly clay loam, or cobbly clay. It is 35 to 45 percent clay and 5 to 50 percent rock fragments.

The 2Bt horizon is cobbly clay loam or very cobbly clay loam with 35 to 40 percent clay.

The 2Bkqm horizon is 2 to 8 inches thick.

Egyptcreek Series

The Egyptcreek series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from welded tuff. The soils are on hills and mountains. Slope is 20 to 60 percent. Elevation is 4,200 to 5,200 feet. The mean annual precipitation is 14 to 18 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Ultic Haploxerolls

Typical pedon of Egyptcreek very gravelly loam in an area of Anatone-Egyptcreek-Rock outcrop association, 20 to 50 percent slopes; about 660 feet south and 1,980 feet west of the northeast corner of sec. 29, T. 21 S., R. 27 E.; Dry Mountain quadrangle.

Oi—1 inch to 0 ; slightly decomposed needles and twigs.

A1—0 to 2 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, moderately sticky and moderately plastic; common very fine and fine roots; few fine irregular pores; 30 percent gravel and 5 percent cobbles; slightly acid (pH 6.4); clear smooth boundary.

A2—2 to 8 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; few fine, medium, and coarse roots; few fine irregular discontinuous pores; 35 percent gravel and 5 percent cobbles; neutral (pH 6.6); gradual wavy boundary.

Bw1—8 to 18 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine, medium, and coarse roots; few fine irregular discontinuous pores; 45 percent gravel and 10 percent cobbles; neutral (pH 6.6); gradual wavy boundary.

Bw2—18 to 24 inches; yellowish brown (10YR 5/4) extremely cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine, medium, and coarse roots; few fine irregular discontinuous pores; 20 percent gravel, 40 percent cobbles, and 5 percent stones; neutral (pH 6.6); abrupt irregular boundary.

R—24 inches; fractured welded tuff.

The mollic epipedon is 7 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 36 inches thick. The particle-size control section averages 35 to 60 percent rock fragments and 20 to 27 percent clay. It is slightly acid or neutral.

The A horizon has value of 4 or 5 dry and 3 moist, and it has chroma of 2 or 3 moist or dry. The darker value and chroma are in the upper part. The horizon is very gravelly loam or very stony loam with 35 to 60 percent rock fragments.

The Bw horizon is very gravelly loam and extremely cobbly loam with 35 to 70 percent rock fragments.

Enko Series

The Enko series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 1 to 15 percent. Elevation is 4,200 to 4,800 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Durinodic Xeric Haplocambids

Typical pedon of Enko loamy sand, 2 to 8 percent slopes, about 2,200 feet south and 2,100 feet east of the northwest corner of sec. 8, T. 39 S., R. 36 E.; Tumtum Lake quadrangle.

A—0 to 8 inches; brown (10YR 5/3) loamy sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine, and common medium and few coarse roots; many very fine vesicular and irregular pores and many fine irregular pores; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bw1—8 to 19 inches; brown (10YR 5/3) sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine and fine irregular pores; 3 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bw2—19 to 29 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 4/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine and common fine irregular pores; 5 percent durinodes; 3 percent gravel; slightly alkaline (pH 7.5); clear smooth boundary.

Bkq1—29 to 45 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm and brittle, nonsticky and nonplastic; few fine roots; many very fine and common fine irregular pores; slightly effervescent with carbonates segregated in few fine filaments; 5 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.

2Bkq2—45 to 62 inches; very pale brown (10YR 8/3) gravelly loamy sand, yellowish brown (10YR 5/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine roots; many very fine and fine irregular pores; 40 percent durinodes; violently effervescent with disseminated carbonates; 20 percent gravel; moderately alkaline (pH 8.3).

Depth to the firm and brittle layer is 20 to 35 inches. Bedrock is at a depth of more than 60 inches. Calcium carbonate is at a depth of 20 to 35 inches. The particle-size control section averages 0 to 5 percent rock fragments, mainly gravel, and 10 to 18 percent clay. The profile is slightly alkaline or moderately alkaline.

The A horizon is loamy sand or gravelly loamy sand. It is 5 to 25 percent rock fragments and 5 to 10 percent clay.

The Bw and Bkq horizons are 0 to 5 percent rock fragments and 10 to 18 percent clay.

The 2Bkq horizon is loamy sand, sandy loam, or gravelly loamy sand. It is 5 to 25 percent rock fragments and 5 to 15 percent clay.

Erakatak Series

The Erakatak series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt and welded tuff. The soils are on plateaus, hills, and mountains. Slope is 2 to 80 percent. Elevation is 4,400 to 7,500 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls

Typical pedon of Erakatak very cobbly loam in an area of Merlin-Erakatak-Teguro complex, 2 to 20 percent slopes; about 1,900 feet north and 1,000 feet east of the southwest corner of sec. 20, T. 20 S., R. 29 E.; Hughet Valley quadrangle.

A1—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; common very fine and fine and few medium irregular pores; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 6.6); clear smooth boundary.

A2—2 to 7 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and fine and few medium irregular pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

Bt1—7 to 16 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; strong medium angular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine and medium and few very fine and coarse roots; few very fine and medium and common fine irregular pores; common distinct clay films on faces of peds; 20 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear wavy boundary.

Bt2—16 to 25 inches; light yellowish brown (10YR 6/4) very cobbly clay, dark yellowish brown (10YR 4/4) moist; moderate medium prismatic structure parting to moderate medium angular blocky; very hard, very firm, very sticky and very plastic; few very fine, fine, medium, and coarse roots; few fine, medium, and coarse irregular pores; common prominent clay films on faces of peds; 25 percent gravel and 20 percent cobbles; neutral (pH 7.2); clear smooth boundary.

R—25 inches; fractured welded tuff.

The mollic epipedon is 7 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly cobbles, and 35 to 50 percent clay.

The A horizon is very cobbly loam, very stony clay loam, or extremely stony silty clay loam. It is 35 to 70 percent rock fragments and 18 to 35 percent clay.

The Bt1 horizon is very cobbly clay loam or very cobbly silty clay loam. It is 35 to 60 percent rock fragments and 35 to 40 percent clay.

The Bt2 horizon is very gravelly clay or very cobbly clay. It is 35 to 60 percent rock fragments and 40 to 55 percent clay.

Felcher Series

The Felcher series consists of moderately deep, well drained soils that formed in colluvium and residuum over basalt, andesite, and welded tuff. The soils are on

mountains and hills. Slope is 5 to 70 percent. Elevation is 4,100 to 7,100 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, mesic Xeric Haplocambids

Typical pedon of Felcher very stony clay loam in an area of Felcher-Rock outcrop complex, 40 to 70 percent south slopes; about 2,000 feet south and 900 feet west of the northeast corner of sec. 30, T. 39 S., R. 37 E.; Pole Canyon quadrangle.

A—0 to 10 inches; light brownish gray (10YR 6/2) very stony clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine and medium granular structure; slightly hard, friable, moderately sticky and slightly plastic; many very fine and fine roots; many very fine tubular and irregular pores; 25 percent gravel, 10 percent cobbles, and 15 percent stones; neutral (pH 6.8); gradual wavy boundary.

Bw—10 to 22 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; 30 percent gravel, 15 percent cobbles, and 2 percent stones; neutral (pH 7.2); abrupt wavy boundary.

R—22 inches; basalt.

Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly gravel and cobbles, and 20 to 35 percent clay. The profile is neutral or slightly alkaline.

The A horizon is very cobbly loam, stony clay loam, very stony clay loam, extremely stony sandy clay loam, or extremely stony clay loam. It is 15 to 70 percent rock fragments.

The Bw horizon is very gravelly clay loam, very cobbly loam, or very cobbly clay loam. It is 35 to 60 percent rock fragments.

Final Series

The Final series consists of very deep, somewhat poorly drained soils that formed in alluvium. The soils are on stream terraces. Slope is 0 to 2 percent. Elevation is 3,500 to 4,000 feet. The mean annual precipitation is 8 to 11 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Vertic Natrargids

Typical pedon of Final silt loam, 0 to 2 percent slopes, about 1,600 feet north and 200 feet east of the southwest corner of sec. 10, T. 22 S., R. 35 E.; Bartlett Mountain quadrangle.

A—0 to 3 inches; very dark grayish brown (10YR 3/2) silt loam, gray (10YR 6/1) dry; moderate very thick platy structure; slightly hard, very friable, nonsticky and nonplastic; many very fine and fine roots; many very fine and fine vesicular pores; sodium adsorption ratio is 42, electrical conductivity is 4; moderately alkaline (pH 8.0); abrupt smooth boundary.

Btn1—3 to 7 inches; very dark gray (10YR 3/1) clay, grayish brown (10YR 5/2) dry; weak fine and medium prismatic structure parting to strong very fine, fine, and medium angular blocky; very hard, firm, very sticky and very plastic; many very fine and fine, common medium, and few coarse roots; common very fine tubular pores; many faint clay films on faces of peds and lining pores; moderately alkaline (pH 8.2); clear smooth boundary.

Btn2—7 to 12 inches; dark grayish brown (10YR 4/2) clay, light brownish gray (10YR

6/2) dry; moderate very fine, fine, and medium subangular blocky structure; hard, friable, very sticky and very plastic; common very fine, fine, and medium and few coarse roots; common very fine and fine tubular pores; many faint clay films on faces of peds and lining pores; strongly effervescent; sodium adsorption ratio is 56, electrical conductivity is 8; strongly alkaline (pH 8.6); gradual smooth boundary.

2Bn—12 to 24 inches; dark grayish brown (2.5Y 4/2) clay, light brownish gray (10YR 6/2) dry; weak fine and medium subangular blocky structure; hard, friable, very sticky and very plastic; common very fine, fine, and medium roots; common very fine and fine tubular pores; many faint coatings of organic matter on faces of peds and lining pores; strongly effervescent; sodium adsorption ratio is 80; electrical conductivity is 14; strongly alkaline (pH 8.8); gradual smooth boundary.

2Bkn1—24 to 42 inches; very dark grayish brown (2.5Y 3/2) clay loam, light brownish gray (2.5Y 6/2) dry; weak fine and medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular pores; many faint coatings of organic matter on faces of peds and lining pores; strongly effervescent with filaments of carbonates; sodium adsorption ratio is 99; electrical conductivity is 12; very strongly alkaline (pH 9.2); gradual smooth boundary.

2Bkn2—42 to 60 inches; dark grayish brown (2.5Y 4/2) silty clay loam, light brownish gray (2.5Y 6/2) dry; weak medium and fine subangular blocky structure; hard, firm and brittle, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular pores; many faint coatings of organic matter on faces of peds and lining pores; 5 percent fine gravel; filaments of carbonates; sodium adsorption ratio is 112; electrical conductivity is 8; strongly effervescent; very strongly alkaline (pH 9.2)

Depth to bedrock and thickness of the solum are more than 60 inches. A high water table is present in spring. The particle-size control section averages 40 to 50 percent clay. The profile is moderately alkaline to very strongly alkaline, increasing with depth. Depth to the natric horizon (Btn horizon) is 1 to 4 inches.

The A horizon is 1 to 2 percent organic matter. The sodium adsorption ratio is 25 to 45. Electrical conductivity is 2 to 4 millimhos per centimeter.

The Btn horizon has hue of 10YR or 2.5Y. It is silty clay or clay with 40 to 55 percent clay. The sodium adsorption ratio is 30 to 60. Electrical conductivity is 4 to 8 millimhos per centimeter. The horizon is 1 to 2 percent organic matter.

The 2Bn horizon has hue of 10YR or 2.5Y. It is clay or silt clay with 40 to 50 percent clay. The sodium adsorption ratio is 50 to 90. Electrical conductivity is 8 to 16 millimhos per centimeter.

The 2Bkn horizon is silty clay loam and clay loam with 27 to 40 percent clay. The sodium adsorption ratio is 80 to 120. Electrical conductivity is 8 to 16 millimhos per centimeter in the upper part and 4 to 8 millimhos per centimeter in the lower part.

Fitzwater Series

The Fitzwater series consists of deep, well drained soils that formed in colluvium derived from basalt and welded tuff. The soils are on hills and mountains. Slope is 20 to 60 percent. Elevation is 4,100 to 7,500 feet. The mean annual precipitation is 10 to 16 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Aridic Haploxerolls

Typical pedon of Fitzwater very stony loam in an area of Fitzwater-Hapgood association, 20 to 40 percent slopes; about 1,980 feet south and 660 feet east of the northwest corner of sec. 16, T. 37 S., R. 29 E.; Mahogany Butte quadrangle.

A—0 to 9 inches; grayish brown (10YR 5/2) very stony loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and common medium roots; many very fine and fine irregular pores; 15 percent gravel, 20 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.7); clear wavy boundary.

Bw1—9 to 16 inches; brown (10YR 5/3) very gravelly loam, dark brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine and common medium roots; many fine and common medium irregular pores; 40 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.7); clear wavy boundary.

Bw2—16 to 30 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common very fine and fine irregular pores; 30 percent gravel, 30 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.7); clear wavy boundary.

C—30 to 58 inches; pale brown (10YR 6/3) extremely stony sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; few fine irregular pores; 20 percent gravel, 30 percent cobbles, and 30 percent stones; slightly alkaline (pH 7.7); abrupt irregular boundary.

R—58 inches; basalt.

The mollic epipedon is 7 to 12 inches thick. Depth to bedrock is 40 to 60 inches. The particle-size control section averages 50 to 80 percent rock fragments, mainly cobbles, and 18 to 27 percent clay.

The A horizon is very cobbly loam or very stony loam. It is 40 to 60 percent rock fragments and 18 to 27 percent clay.

The Bw horizon is very gravelly loam, extremely gravelly loam, extremely cobbly loam, or very cobbly loam. It is 50 to 80 percent rock fragments and 18 to 27 percent clay.

The C horizon is extremely cobbly sandy loam, extremely cobbly loam, or extremely stony sandy loam. It is 60 to 80 percent rock fragments and 15 to 25 percent clay.

Flank Series

The Flank series consists of very shallow and shallow, well drained soils that formed in cinders and ash over basalt. The soils are on hills. Slope is 1 to 20 percent. Elevation is 4,100 to 4,700 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy-skeletal, nonacid, frigid Lithic Xeric Torriorthents

Typical pedon of Flank extremely gravelly loamy sand in an area of Flank-Lava flows complex, 1 to 40 percent slopes; about 1,600 feet south and 700 feet east of the northwest corner of sec. 36, T. 28 S., R. 32 E.; Diamond quadrangle.

A—0 to 1 inch; dark grayish brown (10YR 4/2) extremely gravelly loamy sand, very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; common very fine roots; 65 percent gravel-sized cinders; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bw—1 to 9 inches; dark brown (10YR 4/3) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and very fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine

and few fine roots; few very fine tubular pores; 40 percent gravel-sized cinders; slightly alkaline (pH 7.5); abrupt wavy boundary.
2R—9 inches; basalt.

The mollic colors throughout the profile are due to the parent material. Depth to bedrock is 4 to 15 inches. The particle-size control section averages 35 to 70 percent gravel-sized cinders, 5 to 18 percent clay, and 40 to 80 percent glass.

The A horizon is very gravelly sandy loam or extremely gravelly loamy sand. It is 25 to 70 percent rock fragments.

The Bw horizon is very gravelly sandy loam, very gravelly loam, or extremely gravelly sandy loam. It is 35 to 70 percent rock fragments.

Fourwheel Series

The Fourwheel series consists of moderately deep, well drained soils that formed in colluvium and residuum over basalt, andesite, and welded tuff. The soils are on hills and plateaus. Slope is 3 to 40 percent. Elevation is 4,200 to 6,500 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Vertic Paleargids

Typical pedon of Fourwheel clay loam in an area of Robson-Fourwheel complex, 3 to 30 percent slopes; about 2,100 feet north and 200 feet east of the southwest corner of sec. 28, T. 39 S., R. 37 E.; Trout Creek Canyon quadrangle.

A1—0 to 2 inches; gray (10YR 6/1) clay loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine tubular and vesicular pores; 10 percent gravel; neutral (pH 7.0); clear wavy boundary.
A2—2 to 7 inches; light brownish gray (10YR 6/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many very fine and fine tubular and irregular pores; 10 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
Bt1—7 to 14 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium subangular blocky structure; very hard, very firm, very sticky and very plastic; common very fine, fine, and medium roots; many very fine and fine tubular and irregular pores; many prominent clay films on faces of peds; 10 percent gravel; neutral (pH 7.2); abrupt wavy boundary.
Bt2—14 to 22 inches; yellowish brown (10YR 5/6) clay, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; many very fine irregular pores; common prominent clay films on faces of peds; 10 percent gravel; neutral (pH 7.3); gradual wavy boundary.
2R—22 inches; basalt.

Depth to bedrock is 20 to 40 inches. Depth to the claypan is 4 to 11 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 45 to 60 percent clay. It is neutral or slightly alkaline. The content of clay in the Bt horizon is 15 to 25 percent more than that of the A horizon.

The A horizon is clay loam, extremely cobbly loam, or stony loam. It is 5 to 65 percent rock fragments and 20 to 35 percent clay.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6 dry and 3 to 5 moist, and chroma of 3 or 4 moist and 3 to 6 dry. It is clay or silty clay.

Freznik Series

The Freznik series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from welded tuff and basalt. The soils are on plateaus. Slope is 2 to 15 percent. Elevation is 5,700 to 6,200 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Xeric Paleargids

Typical pedon of Freznik very stony silt loam, 2 to 15 percent slopes, about 1,600 feet south and 1,600 feet east of the northwest corner of sec. 32, T. 39 S., R. 29 E.; Chimney Rock quadrangle.

A—0 to 4 inches; light brownish gray (10YR 6/2) very stony silt loam, dark grayish brown (10YR 4/2) moist; strong thick platy structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many fine and common medium horizontal vesicular pores; 15 percent gravel, 10 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bt1—4 to 12 inches; pale brown (10YR 6/3) cobbly silty clay loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and slightly plastic; many fine and few medium roots; many very fine and fine and few medium irregular tubular pores; common faint clay films on faces of peds; 5 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bt2—12 to 20 inches; light yellowish brown (10YR 6/4) silty clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic and angular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; common fine and few medium roots; common very fine and fine irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

Bt3—20 to 31 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium angular blocky structure parting to strong fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; common very fine and fine irregular pores; few faint and distinct clay films on faces of peds; moderately alkaline (pH 8.0); abrupt smooth boundary.

C—31 to 35 inches; very pale brown (10YR 7/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine irregular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

2R—35 inches; basalt.

Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 0 to 35 percent rock fragments, mainly gravel, and 40 to 55 percent clay.

The A horizon is 35 to 60 percent rock fragments and 18 to 27 percent clay. It is 2 to 5 inches thick.

The Bt horizon is silty clay loam, silty clay, and cobbly silty clay loam. It is 0 to 35 percent rock fragments and 35 to 55 percent clay. It is slightly alkaline or moderately alkaline.

The C horizon is silty clay loam or silty clay. It is 0 to 10 percent rock fragments and 30 to 45 percent clay.

Fury Series

The Fury series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 5,100 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed, frigid Cumulic Endoaquolls

Typical pedon of Fury silt loam, 0 to 1 percent slopes, about 250 feet north and 750 feet east of the southwest corner of sec. 14, T. 23 S., R. 31 E.; Poison Creek Slough quadrangle.

A1—0 to 7 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; slightly effervescent with disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

A2—7 to 14 inches; dark gray (10YR 4/1) silt loam, very dark gray (10YR 3/1) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; common very fine tubular pores; slightly effervescent with disseminated carbonates; moderately alkaline (pH 8.0); gradual smooth boundary.

A3—14 to 21 inches; dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) crushed, with coatings that are black (10YR 2/1) when moist; weak fine prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; common very fine tubular pores; slightly effervescent with disseminated carbonates; slightly alkaline (pH 7.8); gradual smooth boundary.

Ak—21 to 27 inches; dark gray (10YR 4/1) silty clay loam, very dark gray (10YR 3/1) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; many fine and very fine tubular pores; strongly effervescent with disseminated carbonates and brown flecks and streaks of carbonates; few fine distinct iron concentrations that are reddish brown (5YR 5/4) when moist; slightly alkaline (pH 7.8); abrupt wavy boundary.

2AC—27 to 34 inches; light gray (10YR 7/1) silt loam, dark grayish brown (10YR 4/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many roots; many very fine tubular pores; slightly effervescent with disseminated carbonates; common fine distinct iron concentrations that are reddish brown (5YR 5/4) when moist; slightly alkaline (pH 7.8); abrupt wavy boundary.

2C—34 to 44 inches; white (10YR 8/1) silt loam, pale brown (10YR 6/3) moist; massive; slightly hard, firm, slightly sticky and nonplastic; few roots; many very fine tubular pores; slightly alkaline (pH 7.8); abrupt wavy boundary.

3Ab—44 to 60 inches; gray (10YR 5/1) silty clay loam, very dark gray (10YR 3/1) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; slightly alkaline (pH 7.8).

An organic horizon as much as 3 inches thick is in some pedons in the southern part of the Blitzen River Valley. The mollic epipedon is 24 to 40 inches thick. Bedrock is at a depth of more than 60 inches. Frequent ponding occurs in spring. A high water table is present late in winter, in spring, and early in summer. The particle-size control section averages 27 to 35 percent clay.

The A horizon has hue of 10YR or 2.5Y, value of 3 to 5 dry and 1 to 3 moist, and chroma of 1 or 2 moist or dry. Chroma of 2 only occurs in the lower part of the mollic epipedon. The upper part of the horizon has a sodium adsorption ratio of 5 to 10 and a calcium carbonate equivalent of 0 to 5 percent. The lower part has a sodium adsorption ratio of 0 to 5 and a calcium carbonate equivalent of 5 to 10 percent.

Layers of volcanic ash deposits can be present below the A horizon. These layers have a silt loam texture and have hue of 10YR, value of 7 or 8 dry and 4 to 6 moist, and chroma of 2 or 3 moist and 1 dry.

The Fury soils in this survey area are in the calcareous family; therefore, they are a taxadjunct to the Fury series.

Gaib Series

The Gaib series consists of shallow, well drained soils that formed in residuum and colluvium over welded tuff. The soils are on hills. Slope is 2 to 60 percent. Elevation is 4,300 to 5,400 feet. The mean annual precipitation is 14 to 18 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Lithic Ultic Argixerolls

Typical pedon of Gaib gravelly loam in an area of Gaib-Ateron complex, 2 to 15 percent slopes; about 660 feet north and 600 feet east of the southwest corner of sec. 28, T. 21 S., R. 27 E.; Egypt Canyon quadrangle.

Oi—2 inches to 0; slightly decomposed pine needles and twigs.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark brown (10YR 2/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; few very fine and common fine and medium irregular pores; 15 percent gravel, 5 percent cobbles, and 5 percent stones; neutral (pH 6.8); clear smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; few very fine and medium and common fine roots; few very fine and medium and common fine discontinuous irregular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 6.6); clear smooth boundary.

Bt1—7 to 12 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few very fine and medium and common fine irregular pores; common faint and few distinct clay films on faces of peds; 15 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 6.8); abrupt smooth boundary.

Bt2—12 to 16 inches; light yellowish brown (10YR 6/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine angular blocky structure; hard, firm, very sticky and very plastic; few fine and medium roots; few fine and medium continuous irregular pores; common distinct clay films on faces of peds; 15 percent gravel, 40 percent cobbles, and 15 percent stones; neutral (pH 7.0); abrupt wavy boundary.

R—16 inches; fractured welded tuff.

The mollic epipedon is 7 to 12 inches thick. Depth to bedrock is 10 to 20 inches. The particle-size control section averages 35 to 65 percent rock fragments, mainly gravel and cobbles, and 25 to 35 percent clay. The profile is slightly acid or neutral.

The A horizon is 15 to 35 percent rock fragments and 18 to 27 percent clay.

The Bt horizon is very gravelly loam, very cobbly clay loam, or extremely cobbly clay loam. It is 35 to 70 percent rock fragments and 25 to 35 percent clay.

Gilispie Series

The Gilispie series consists of shallow, well drained soils that formed in colluvium and residuum over basalt and andesite. The soils are on mountains. Slope is 3 to 15 percent. Elevation is 5,800 to 7,000 feet. The mean annual precipitation is 12 to 25 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy, mixed Argic Lithic Cryoborolls

Typical pedon of Gilispie loam in an area of Gilispie-Noname complex, 3 to 15 percent slopes; about 2,000 feet north and 2,100 feet west of the southeast corner of sec. 30, T. 32 S., R. 32¾ E.; Page Springs quadrangle.

A—0 to 5 inches; dark brown (10YR 3/3) loam, very dark brown (10YR 2/2) moist; weak very thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine vesicular and irregular pores and many fine vesicular pores; 5 percent gravel, 3 percent cobbles, and 3 percent stones; slightly acid (pH 6.4); clear smooth boundary.

Bt—5 to 14 inches; dark brown (7.5YR 3/2) silty clay loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few fine and very fine roots; common fine irregular pores and few fine tubular pores; few faint clay films on faces of peds and lining pores; 5 percent gravel; slightly acid (pH 6.4); clear irregular boundary.

R—14 inches; basalt.

The mollic epipedon is 7 to 15 inches thick. Thickness of the solum and depth to bedrock are 12 to 20 inches. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 25 to 35 percent clay. The profile is slightly acid or neutral.

The A horizon is 0 to 10 percent rock fragments and 18 to 25 percent clay.

The Bt horizon is loam, clay loam, or silty clay loam. It has hue of 10YR and 7.5YR. It is 0 to 10 percent rock fragments and 25 to 35 percent clay.

Gochea Series

The Gochea series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces and in depressions on plateaus. Slope is 0 to 2 percent. Elevation is 4,300 to 5,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Argiduridic Argixerolls

Typical pedon of Gochea sandy loam, 0 to 2 percent slopes, about 2,300 feet south and 1,200 feet west of the northeast corner of sec. 3, T. 24 S., R. 24 E.; Potato Hills quadrangle.

A1—0 to 3 inches; grayish brown (10YR 5/2) sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine and medium and many fine irregular pores; neutral (pH 7.0); clear smooth boundary.

A2—3 to 9 inches; grayish brown (10YR 5/2) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine

and few fine and medium roots; common very fine and fine and few medium irregular pores; neutral (pH 7.2); clear smooth boundary.

Bt—9 to 13 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium irregular pores; common distinct clay films on faces of peds; slightly alkaline (pH 7.4); gradual smooth boundary.

Btq—13 to 27 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; strong medium angular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few very fine, fine, and medium irregular pores; 30 percent durinodes; common faint clay films on faces of peds; slightly alkaline (pH 7.5); clear smooth boundary.

BC—27 to 35 inches; very pale brown (10YR 7/3) gravelly sandy loam, brown (10YR 5/3) moist; moderate medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few fine, medium, and coarse roots; few very fine and medium and common fine irregular pores; 30 percent gravel; slightly alkaline (pH 7.5); gradual wavy boundary.

C—35 to 62 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; single grain; loose, very friable, slightly sticky and slightly plastic; few fine and medium roots; few very fine, fine, and medium roots; few very fine, fine, and medium irregular pores; 30 percent gravel; slightly alkaline (pH 7.5).

The mollic epipedon is 10 to 15 inches thick. Bedrock is at a depth of more than 60 inches. Depth to the Btq horizon is 13 to 20 inches. The particle-size control section averages 0 to 25 percent rock fragments, mainly gravel, and 18 to 25 percent clay.

The A horizon is 0 to 15 percent rock fragments and 10 to 20 percent clay. It is neutral or slightly alkaline.

The Bt horizon is sandy loam, loam, or gravelly sandy loam. It is 0 to 25 percent rock fragments and 18 to 25 percent clay. It is neutral or slightly alkaline.

The Btq horizon is sandy loam or gravelly sandy loam. It is 5 to 30 percent rock fragments and 15 to 20 percent clay. It is 20 to 50 percent durinodes. It is slightly alkaline or moderately alkaline.

The BC and C horizons are gravelly sandy loam and very gravelly sandy loam. They are 25 to 60 percent rock fragments and 5 to 15 percent clay. They are slightly alkaline or moderately alkaline.

Goldrun Series

The Goldrun series consists of very deep, somewhat excessively drained soils that formed in eolian sand. The soils are on dunes. Slope is 1 to 15 percent. Elevation is 4,000 to 4,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Mixed, mesic Xeric Torripsamments

Typical pedon of Goldrun loamy sand in an area of Goldrun-Alvodest complex, 0 to 12 percent slopes; about 2,600 feet south and 700 feet east of the northwest corner of sec. 27, T. 37 S., R. 33 E.; Borax Lake quadrangle.

A—0 to 24 inches; pale brown (10YR 6/3) loamy sand, very dark grayish brown (10YR 3/2) moist; very weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse

roots; many fine irregular pores; moderately alkaline (pH 8.4); gradual wavy boundary.

C—24 to 56 inches; pale brown (10YR 6/3) loamy fine sand, very dark grayish brown (10YR 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots; many fine irregular pores; slightly effervescent with disseminated carbonates; moderately alkaline (pH 8.2); gradual wavy boundary.

2Ck—56 to 62 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; common fine irregular and tubular pores; slightly effervescent with carbonates segregated in few fine filaments and soft masses; moderately alkaline (pH 8.2).

Bedrock is at a depth of more than 60 inches. Calcium carbonate is at a depth of 20 to 35 inches. The particle-size control section averages 1 to 5 percent clay. The 2Ck horizon, where present, is below a depth of 40 inches.

The A horizon is loamy fine sand or loamy sand with 1 to 5 percent clay.

The C horizon is fine sand, loamy sand, or loamy fine sand with 1 to 5 percent clay.

The 2Ck horizon is 20 to 30 percent clay.

Gradon Series

The Gradon series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in alluvium derived from mixed igneous rock. They are on fan terraces. Slope is 0 to 8 percent. Elevation is 4,300 to 4,800 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Argiduridic Durixerolls

Typical pedon of Gradon gravelly fine sandy loam, 0 to 8 percent slopes, about 350 feet south and 150 feet east of the northwest corner of sec. 33, T. 23 S., R. 26 E.; Riley quadrangle.

A1—0 to 3 inches; brown (10YR 5/3) gravelly fine sandy loam, dark brown (10YR 3/3) moist; moderate medium platy structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium vesicular pores; 20 percent gravel; neutral (pH 7.0); clear smooth boundary.

A2—3 to 10 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; slightly hard, very friable, moderately sticky and moderately plastic; common very fine and fine and few medium roots; few very fine and medium and common fine tubular pores; 5 percent gravel; neutral (pH 7.2); clear smooth boundary.

Bt—10 to 22 inches; light yellowish brown (10YR 6/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium angular blocky structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and medium and common fine roots; few very fine, fine, and medium tubular pores; common distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Btq—22 to 32 inches; light yellowish brown (10YR 6/4) gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm and brittle, slightly sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and fine tubular pores; common faint clay films on faces of peds; strongly effervescent with disseminated calcium carbonate; 15 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

Bkqm1—32 to 48 inches; very pale brown (10YR 7/3) indurated duripan, brown (10YR 5/3) moist; massive; extremely hard; few very fine roots; violently effervescent with disseminated calcium carbonate and common fine filaments of calcium carbonate; gradual smooth boundary.
Bkqm2—48 to 52 inches; very pale brown (10YR 7/4) strongly cemented duripan, yellowish brown (10YR 5/4) moist; massive; very hard; violently effervescent with disseminated calcium carbonate and common fine filaments of calcium carbonate; gradual smooth boundary.
C—52 to 62 inches; pale brown (10YR 6/3) sandy loam, dark yellowish brown (10YR 4/4) moist; massive; hard, friable, slightly sticky and moderately plastic; moderately alkaline (pH 8.0).

The mollic epipedon is 7 to 12 inches thick. Depth to bedrock is more than 60 inches. Thickness of the solum and depth to the duripan are 20 to 40 inches. The particle-size control section averages 5 to 25 percent rock fragments, mainly gravel, and 25 to 35 percent clay.

The A horizon is 15 to 25 percent rock fragments and 10 to 20 percent clay. It is neutral or slightly alkaline.

The Bt and Btq horizons are loam, clay loam, or gravelly sandy clay loam. They are 5 to 25 percent rock fragments and 25 to 35 percent clay.

The Bkqm horizon is 6 to 20 inches thick.

The C horizon is sandy loam or gravelly sandy loam. It is 0 to 30 percent rock fragments and 5 to 15 percent clay. It is slightly alkaline or moderately alkaline.

Guano Series

The Guano series consists of shallow, well drained soils that formed in residuum derived from tuffaceous sedimentary rock. The soils are on plateaus. Slope is 2 to 15 percent. Elevation is 4,600 to 5,000 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy, mixed, frigid, shallow Xeric Haplargids

Typical pedon of Guano gravelly sandy loam, 2 to 15 percent slopes, about 500 feet west and 2,300 feet south of the northeast corner of sec. 29, T. 36 S., R. 30 E.; Fish Fin Rim quadrangle.

A—0 to 3 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; strong thick platy structure; slightly hard, friable, nonsticky and slightly plastic; common fine and medium roots; many very fine, fine, and medium vesicular pores; 15 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bt—3 to 11 inches; yellowish brown (10YR 5/4) gravelly clay loam, dark yellowish brown (10YR 3/4) moist; moderate fine angular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; common very fine and fine irregular tubular pores; common distinct clay films on faces of peds; 15 percent gravel; slightly alkaline (pH 7.8); abrupt smooth boundary.
Cr—11 inches; weathered tuffaceous sedimentary rock.

Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 0 to 25 percent rock fragments, mainly gravel, and 18 to 30 percent clay. The profile is slightly alkaline or moderately alkaline.

The A horizon is 15 to 35 percent rock fragments and 10 to 18 percent clay.

The Bt horizon is sandy clay loam, loam, or gravelly clay loam. It is 0 to 25 percent rock fragments and 18 to 35 percent clay.

Gumble Series

The Gumble series consists of shallow, well drained soils that formed in colluvium and residuum derived from tuffaceous sedimentary rock. The soils are on hills. Slope is 2 to 40 percent. Elevation is 3,400 to 4,500 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Clayey, montmorillonitic, mesic, shallow Xeric Haplargids

Typical pedon of Gumble very stony loam, 20 to 40 percent south slopes, about 1,400 feet south and 1,100 feet west of the northeast corner of sec. 8, T. 22 S., R. 36 E.; Upton Mountain quadrangle.

A1—0 to 3 inches; pale brown (10YR 6/3) very stony loam, dark brown (10YR 3/3) moist; weak thick platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; common very fine vesicular pores; 25 percent gravel, 5 percent cobbles, and 25 percent stones; slightly alkaline (pH 7.8); clear smooth boundary.

A2—3 to 8 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and few fine roots; few very fine vesicular pores; 10 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.

Bt—8 to 14 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many very fine and few fine roots; few very fine tubular pores; many prominent clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.7); clear smooth boundary.

2C—14 to 16 inches; light yellowish brown (2.5Y 6/4) silty clay loam, light olive brown (2.5Y 5/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine tubular pores; 5 percent gravel; moderately alkaline (pH 7.9); clear smooth boundary.

2Cr—16 inches; tuffaceous sedimentary rock.

Depth to bedrock is 14 to 20 inches. The particle-size control section is 0 to 30 percent rock fragments, mainly gravel, and 35 to 50 percent clay. Some pedons do not have a 2C horizon.

The A horizon is very gravelly silt loam, very cobbly loam, or very stony loam. It is 35 to 60 percent rock fragments and 18 to 27 percent clay.

The Bt horizon is clay loam, clay, or gravelly clay. It is 5 to 30 percent rock fragments and 35 to 50 percent clay. It is slightly alkaline or moderately alkaline.

The 2C horizon is silty clay loam or clay loam. It is 0 to 5 percent rock fragments and 30 to 40 percent clay.

Hackwood Series

The Hackwood series consists of very deep, well drained soils that formed in loess and colluvium derived from basalt and andesite. The soils are on mountains. Slope is 2 to 50 percent. Elevation is 5,200 to 9,700 feet. The mean annual precipitation is 14 to 40 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Fine-loamy, mixed Pachic Cryoborolls

Typical pedon of Hackwood gravelly loam, 20 to 35 percent slopes, about 2,200 feet north and 300 feet east of the southwest corner of sec. 6, T. 41 S., R. 38 E., "The V" quadrangle.

A1—0 to 11 inches; brown (10YR 4/3) gravelly loam, very dark grayish brown (10YR

3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common very fine and fine and few medium tubular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 6.8); clear wavy boundary.

A2—11 to 23 inches; brown (10YR 4/3) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; common very fine and fine tubular pores; 10 percent gravel; neutral (pH 6.6); clear wavy boundary.

AC1—23 to 42 inches; brown (10YR 5/3) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine and fine tubular pores; 25 percent gravel; neutral (pH 6.8); clear wavy boundary.

AC2—42 to 48 inches; brown (10YR 5/3) gravelly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium roots; few very fine and fine tubular pores; 25 percent gravel; neutral (pH 6.7); clear wavy boundary.

C—48 to 60 inches; light yellowish brown (10YR 6/4) gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few medium roots; few very fine tubular pores; 25 percent gravel; neutral (pH 7.0).

The mollic epipedon is 16 to 35 inches thick. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 15 to 35 percent rock fragments, mainly gravel, and 18 to 30 percent clay.

The upper part of the A horizon is gravelly loam or very gravelly loam with 15 to 40 percent rock fragments. The lower part is loam or gravelly loam with 5 to 25 percent rock fragments. The horizon is 15 to 27 percent clay.

The AC horizon is gravelly loam or gravelly clay loam. It is 15 to 35 percent rock fragments and 18 to 30 percent clay.

The C horizon is gravelly loam, very gravelly loam, or very gravelly clay loam. It is 20 to 45 percent rock fragments and 18 to 30 percent clay.

Hapgood Series

The Hapgood series consists of deep, well drained soils that formed in colluvium over basalt, andesite, and welded tuff. The soils are on mountains and hills. Slope is 2 to 50 percent. Elevation is 5,600 to 8,500 feet. The mean annual precipitation is 12 to 35 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed Pachic Cryoborolls

Typical pedon of Hapgood very cobbly loam in an area of Erakatak-Ninemile-Hapgood association, 5 to 40 percent slopes; about 1,900 feet north and 400 feet west of the southeast corner of sec. 27, T. 40 S., R. 37 E., “The V” quadrangle.

A1—0 to 10 inches; dark gray (10YR 4/1) very cobbly loam, very dark gray (10YR 3/1) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse roots; many very fine tubular and irregular pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 6.8); gradual wavy boundary.

A2—10 to 23 inches; dark grayish brown (10YR 4/2) very stony loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine,

fine, medium, and coarse roots; many very fine tubular and irregular pores; 10 percent gravel, 20 percent cobbles, and 25 percent stones; neutral (pH 6.8); gradual irregular boundary.

A3—23 to 43 inches; dark grayish brown (10YR 4/2) very stony loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; many very fine tubular and irregular pores; 10 percent gravel, 20 percent cobbles, and 25 percent stones; neutral (pH 6.8); clear broken boundary.

R—43 inches; basalt.

The mollic epipedon is 30 to 50 inches thick. Depth to bedrock is 40 to 60 inches. The particle-size control section averages 35 to 60 percent rock fragments and 18 to 30 percent clay. The profile has hue of 10YR or 7.5YR.

The upper part of the A horizon is gravelly sandy loam, very cobbly loam, or extremely gravelly sandy loam. It is 30 to 75 percent rock fragments and 15 to 27 percent clay.

The lower part of the A horizon is very gravelly loam, very gravelly clay loam, or very stony loam. It is 40 to 60 percent rock fragments and 18 to 30 percent clay.

Hart Camp Series

The Hart Camp series consists of shallow, well drained soils that formed in residuum and colluvium derived from tuff. The soils are on hills. Slope is 5 to 30 percent. Elevation is 4,100 to 4,500 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy, mixed, frigid, shallow Aridic Argixerolls

Typical pedon of Hart Camp cobbly loam, 5 to 15 percent slopes, about 2,000 feet north and 2,250 feet west of the southeast corner of sec. 27, T. 25 S., R. 34 E.; New Princeton quadrangle.

A—0 to 3 inches; brown (10YR 5/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 15 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—3 to 9 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; few faint clay films on faces of peds and lining pores; 10 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—9 to 19 inches; brown (10YR 5/3) cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and slightly plastic; few very fine and fine roots; few fine tubular pores; common distinct clay films on faces of peds; 15 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.8); abrupt wavy boundary.

Cr—19 inches; weathered tuff.

The mollic epipedon is 10 to 15 inches thick. Thickness of the solum and depth to bedrock are 10 to 20 inches. The profile is neutral or slightly alkaline. The particle-size control section averages 25 to 35 percent rock fragments, mainly cobbles, and 20 to 30 percent clay.

The A horizon has value of 3 moist and 5 dry, and it has chroma of 2 or 3 moist and 3 dry. It is 15 to 35 percent rock fragments and 15 to 25 percent clay.

The Bt horizon has value of 3 or 4 moist and 5 or 6 dry, and it has chroma of 3 or 4

moist and 3 dry. It is cobbly clay loam and cobbly loam. It is 25 to 35 percent rock fragments and 20 to 30 percent clay.

Helphenstein Series

The Helphenstein series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,400 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Sodic Aquicambids

Typical pedon of Helphenstein fine sandy loam in an area of Helphenstein-Goldrun complex, 0 to 15 percent slopes; about 1,000 feet north and 600 feet east of the southwest corner of sec. 28, T. 32 S., R. 26 E.; Corporation Rim quadrangle.

A1—0 to 3 inches; light brownish gray (2.5Y 6/2) fine sandy loam, olive brown (2.5Y 4/3) moist; weak medium platy structure parting to weak fine granular; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common fine vesicular pores; moderately alkaline (pH 8.4); clear smooth boundary.

2A2—3 to 9 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate very fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; few fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

2Bw—9 to 26 inches; pale yellow (2.5Y 7/3) loam, light olive brown (2.5Y 5/3) moist; moderate fine columnar structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and medium roots; few fine tubular pores; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.6); clear smooth boundary.

3Bk—26 to 33 inches; pale yellow (2.5Y 7/3) fine sandy loam, light olive brown (2.5Y 5/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; strongly effervescent with disseminated carbonates and common fine filaments of carbonates; strongly alkaline (pH 8.6); abrupt wavy boundary.

3Bn1—33 to 41 inches; pale yellow (2.5Y 7/3) very fine sandy loam, light olive brown (2.5Y 5/3) moist; moderate coarse columnar structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine roots; few fine tubular pores; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.6); abrupt wavy boundary.

3Bn2—41 to 51 inches; light gray (2.5Y 7/2) loam, olive brown (2.5Y 4/3) moist; moderate medium columnar structure parting to moderate medium angular blocky; very hard, firm, moderately sticky and moderately plastic; few very fine roots; few fine tubular pores; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.6); abrupt wavy boundary.

4C—51 to 62 inches; pale yellow (5Y 7/3) fine sandy loam, olive (5Y 4/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.8).

The solum is 27 to 60 inches thick. Bedrock is at a depth of more than 60 inches. Depth to secondary carbonates is 10 to 30 inches. Frequent ponding occurs in winter and spring. A high water table is present in winter and spring. The particle-size control section averages 18 to 27 percent clay.

The A horizon has hue of 10YR and 2.5Y. It is 10 to 20 percent clay. It is slightly

alkaline or moderately alkaline. The sodium adsorption ratio is 20 to 50.

The 2Bw horizon has hue of 10YR or 2.5Y. It is silt loam or loam with 18 to 27 percent clay. The sodium adsorption ratio is 40 to 100.

The 3B and 4C horizons have hue of 10YR, 2.5Y, or 5Y. They are fine sandy loam, very fine sandy loam, and loam with 15 to 27 percent clay. Thin strata of white volcanic ash are present in some pedons. The horizons are moderately alkaline or strongly alkaline. The sodium adsorption ratio is 5 to 13.

Homefield Series

The Homefield series consists of very deep, very poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,090 to 4,105 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed (calcareous), frigid Cumulic Endoaquolls

Typical pedon of Homefield mucky silt loam, 0 to 1 percent slopes, about 4,000 feet south and 1,900 feet west of the northeast corner of sec. 23, T. 25 S., R. 32 1/2 E.; Warm Springs Butte quadrangle.

A1—0 to 6 inches; very dark gray (10YR 3/1) mucky silt loam, gray (10YR 5/1) dry; weak medium and fine subangular blocky structure; slightly hard; very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine tubular pores; many gastropod shells; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

A2—6 to 13 inches; very dark gray (5Y 3/1) mucky silt loam, gray (10YR 5/1) dry; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and common fine tubular pores; many gastropod shells; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

A3—13 to 25 inches; very dark gray (10YR 3/1) mucky silt loam, gray (10YR 5/1) dry; moderate coarse and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and common fine tubular pores; few fine distinct iron concentrations that are dark yellowish brown (10YR 4/4) when moist and are in peds and adjacent to pores; many gastropod shells; strongly effervescent; strongly alkaline (pH 8.8); clear smooth boundary.

Ak—25 to 36 inches; very dark grayish brown (2.5Y 3/2) mucky silt loam, dark gray (10YR 4/1) dry; weak fine prismatic structure parting to moderate medium and fine subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; many very fine and common fine tubular pores; few fine distinct iron concentrations that are dark yellowish brown (10YR 4/4) when moist and are in peds and adjacent to pores; strongly effervescent with white (10YR 8/1) masses of carbonates; strongly alkaline (pH 8.8); clear smooth boundary.

Bk—36 to 48 inches; very dark grayish brown (2.5Y 3/2) mucky silty clay loam, light brownish gray (2.5Y 6/2) dry; moderate medium subangular blocky structure; hard, friable, very sticky and very plastic; few very fine and fine roots; many very fine and few fine tubular pores; common fine distinct iron concentrations that are dark yellowish brown (10YR 4/4) when moist and are adjacent to pores; strongly effervescent with masses of carbonates; strongly alkaline (pH 8.6); clear smooth boundary.

2C—48 to 60 inches; brown (10YR 5/3) clay, light gray (10YR 7/2) dry; massive; hard,

firm, very sticky and very plastic; few very fine roots; common very fine tubular pores; common fine faint iron concentrations that are yellowish brown (10YR 5/4) when moist and are adjacent to pores; moderately alkaline (pH 8.4).

The mollic epipedon is 30 to 40 inches thick. Depth to secondary carbonates is 20 to 30 inches. Depth to the clayey substratum is 40 to 60 inches. Depth to bedrock is more than 60 inches. The particle-size control section is 10 to 20 percent organic matter. Frequent ponding occurs in spring and summer. A high water table is present throughout the year.

The A and Ak horizons have hue of 10YR, 2.5Y, or 5Y and value of 4 to 6 dry and 3 or 4 moist. They are strongly alkaline or very strongly alkaline. They are 15 to 25 percent clay. The sodium adsorption ratio of the A1 horizon is 10 to 20, and that of the A2, A3, and Ak horizons is 4 to 16.

The Bk horizon has hue of 10YR, 2.5Y, or 5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 1 or 2 moist or dry. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 4 to 16. The horizon is mucky silt loam or mucky silty clay loam with 18 to 35 percent clay.

The 2C horizon has hue of 10YR, 2.5Y, or 5Y, value of 7 or 8 dry and 4 to 6 moist, and chroma of 1 to 3 moist or dry. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 4 to 16. The horizon is clay or silty clay with 1 to 5 percent organic matter and 40 to 60 percent clay.

Housefield Series

The Housefield series consists of very deep, very poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,100 to 4,230 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed, frigid Cumulic Endoaquolls

Typical pedon of Housefield mucky silt loam in an area of Fury-Housefield complex, 0 to 1 percent slopes, about 1,500 feet north and 1,000 feet west of the southeast corner of sec. 11, T. 29 S., R. 31 E.; Diamond Swamp quadrangle.

Oi—3 inches to 0; slightly decomposed roots and leaves.

A—0 to 6 inches; black (10YR 2/1) mucky silt loam, dark gray (10YR 4/1) dry; moderate very fine and fine granular structure; hard, very friable, moderately sticky and moderately plastic; many very fine and fine roots; many very fine, fine, and medium irregular pores; neutral (pH 7.2); clear smooth boundary.

Bw1—6 to 16 inches; black (10YR 2/1) mucky silt loam, dark gray (10YR 4/1) dry; moderate fine prismatic structure parting to moderate fine and medium subangular blocky parting to moderate very thin and thin platy; hard, friable, moderately sticky and moderately plastic; many very fine and fine roots; common very fine and fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

Bw2—16 to 30 inches; black (10YR 2/1) mucky silt loam, dark gray (10YR 4/1) dry; strong coarse prismatic structure parting to weak medium subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular pores; few fine distinct iron concentrations that are dark yellowish brown (10YR 4/4) when moist and are in peds and adjacent to pores; few white sand-sized pumice grains; slightly alkaline (pH 7.6); clear smooth boundary.

Bw3—30 to 36 inches; black (10YR 2/1) mucky silt loam, dark gray (10YR 4/1) dry; strong coarse prismatic structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine and fine tubular pores; few fine distinct iron concentrations that are dark yellowish brown (10YR 4/4) when moist

and are in peds and adjacent to pores; few sand-sized pumice grains 1 to 2 millimeters in diameter and few glass shards; slightly alkaline (pH 7.6); clear smooth boundary.

Bw4—36 to 48 inches; black (10YR 2/1) mucky silty clay loam, dark gray (10YR 4/1) dry; strong coarse prismatic structure; very hard, firm, very sticky and very plastic; few very fine roots; common very fine and fine tubular pores; many fine distinct iron concentrations that are dark brown (7.5YR 4/4) when moist and lining pores and common fine distinct iron concentrations that are brown (10YR 5/3) when moist and in peds; few sand-sized pumice grains 1 to 2 millimeters in diameter; few glass shards; slightly alkaline (pH 7.6); clear smooth boundary.

2C—48 to 60 inches; brown (10YR 5/3) silty clay, pale brown (10YR 6/3) dry; massive; very hard, very firm, very sticky and very plastic; few very fine roots; common very fine and fine tubular pores; many fine distinct depletions that are grayish brown (2.5Y 5/2) when moist and are in peds and along pores and many distinct iron concentrations that are dark brown (7.5YR 4/4) when moist and are in peds and along pores; black (10YR 2/1) stains of organic matter lining pores; slightly alkaline (pH 7.6).

The mollic epipedon is 40 to 50 inches thick. Depth to bedrock is more than 60 inches. Depth to the clayey substratum is 40 to 60 inches. The profile is neutral or slightly alkaline. The particle-size control section is 10 to 20 percent organic matter. Frequent ponding occurs in spring and summer. A high water table is present throughout the year.

The A horizon has chroma of 1 or 2. It is 15 to 25 percent clay.

The Bw horizon has value of 2 or 3 moist and 4 or 5 dry, and it has chroma of 1 or 2. It is mucky silt loam in the upper part and grades to mucky silty clay loam in the lower part. It is 18 to 35 percent clay.

The 2C horizon has hue of 10YR, 2.5Y, or 5Y, value of 2 to 5 moist and 5 or 6 dry, and chroma of 0 to 3. It is silty clay or clay with 40 to 60 percent clay.

Icene Series

The Icene series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,400 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Typic Aquisalids

Typical pedon of Icene loam in an area of Icene-Playas complex, 0 to 1 percent slopes; about 400 feet north and 300 feet east of the southwest corner of sec. 26, T. 32 S., R. 26 E.; Corporation Rim quadrangle.

A1—0 to 3 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; moderate thick and weak very thin platy structure parting to weak fine granular; slightly hard, very friable, moderately sticky and moderately plastic; few very fine roots; many fine vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

A2—3 to 6 inches; light gray (2.5Y 7/2) loam, olive brown (2.5Y 4/3) moist; moderate thin platy structure parting to moderate very fine subangular blocky; slightly hard, very friable, moderately sticky and moderately plastic; common very fine roots; common fine vesicular pores; moderately alkaline (pH 8.2); gradual smooth boundary.

Bnz—6 to 13 inches; light gray (2.5Y 7/2) clay loam, olive brown (2.5Y 4/3) moist; moderate medium platy structure parting to moderate fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few fine tubular pores; strongly effervescent with

common disseminated carbonates; moderately alkaline (pH 8.4); gradual smooth boundary.

Bknz1—13 to 22 inches; light brownish gray (2.5Y 6/2) clay loam, olive brown (2.5Y 4/3) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few fine tubular pores; strongly effervescent with disseminated carbonates and common fine masses of carbonates; strongly alkaline (pH 8.8); clear smooth boundary.

Bknz2—22 to 32 inches; light brownish gray (2.5Y 6/2) silty clay loam, olive brown (2.5Y 4/4) moist; strong very fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine, fine, medium, and coarse roots; few fine tubular pores; violently effervescent with disseminated carbonates and common fine masses of carbonates; strongly alkaline (pH 8.8); clear wavy boundary.

Bknz3—32 to 44 inches; light gray (2.5Y 7/2) silt loam, olive brown (2.5Y 4/4) moist; strong fine and medium angular blocky structure; very hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine tubular pores; violently effervescent with disseminated carbonates and few fine masses of carbonates; strongly alkaline (pH 8.8); clear wavy boundary.

Bnz—44 to 62 inches; light brownish gray (2.5Y 6/2) clay loam, olive brown (2.5Y 4/3) moist; strong medium angular blocky structure; very hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine tubular pores; strongly alkaline (pH 8.6).

The solum is 30 to 50 inches thick. Bedrock is at a depth of more than 60 inches. Depth to secondary carbonates is 5 to 15 inches. The salic horizon is at a depth of 5 to 15 inches. Occasional or rare ponding occurs late in winter and in spring. A high water table is present late in winter and in spring. The particle-size control section averages 20 to 30 percent clay.

The A horizon has hue of 10YR and 2.5Y. It is loam or fine sandy loam with 10 to 25 percent clay. It is slightly alkaline to strongly alkaline. The sodium adsorption ratio is 13 to 25.

The Bknz horizon has hue of 10YR or 2.5Y. It is silt loam, silty clay loam, and clay loam with 20 to 30 percent clay. The angular blocky structure is a result of fracturing of the compacted lacustrine sediment. The horizon is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 90 to 120. Electrical conductivity is 16 to 32 millimhos per centimeter. The calcium carbonate equivalent is 2 to 10 percent.

The Bnz horizon is 10YR, 2.5Y or 5Y. It is loam or clay loam with 20 to 30 percent clay. The angular blocky structure is a result of fracturing of the compacted lacustrine sediment. The horizon is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 20 to 70. Electrical conductivity is 16 to 32 millimhos per centimeter.

Jesse Camp Series

The Jesse Camp series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 2 to 5 percent. Elevation is 4,900 to 4,910 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed, frigid Xeric Haplocambids

Typical pedon of Jesse Camp silt loam in Lake County, Oregon, about 600 feet north and 600 feet west of the southeast corner of sec. 33, T. 40 S., R. 27 E.; Piute Reservoir quadrangle.

A—0 to 4 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; strong thin platy structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine discontinuous random vesicular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

Bw1—4 to 19 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many very fine and fine roots; slightly alkaline (pH 7.8); clear wavy boundary.

Bw2—19 to 29 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common very fine and fine roots; 15 percent very hard medium cylindrical durinodes; slightly alkaline (pH 7.8); clear wavy boundary.

Bw3—29 to 34 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; massive; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; slightly alkaline (pH 7.8); abrupt wavy boundary.

Bk—34 to 50 inches; very pale brown (10YR 7/3) silt loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; 5 percent gravel; strongly effervescent; carbonates segregated in few very fine irregularly shaped filaments; moderately alkaline (pH 8.1); clear wavy boundary.

2C—50 to 60 inches; very pale brown (10YR 7/3) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; 35 percent fine gravel; moderately alkaline (pH 8.1).

Depth to bedrock is more than 60 inches. The particle-size control section is 18 to 27 percent clay and less than 15 percent material that is coarser than very fine sand.

The A horizon has value of 5 or 6 dry. It is slightly alkaline or moderately alkaline.

The Bw horizon has value of 6 or 7 dry. It is as much as 20 percent brittle durinodes. It is slightly alkaline or moderately alkaline.

The Bk horizon has value of 3 or 4 moist and 6 or 7 dry, and it has chroma of 3 or 4 moist or dry. It is silt loam with thin strata of very fine sandy loam. The horizon is as much as 10 percent gravel and 20 percent hard or extremely hard durinodes. Carbonates are segregated in few or many filaments. The horizon is moderately alkaline or strongly alkaline.

The 2C horizon has value of 3 or 4 moist and 6 or 7 dry, and it has chroma of 3 or 4 moist or dry. It is gravelly sandy loam, very gravelly sandy loam, gravelly loam, or very gravelly loam and is 15 to 50 percent fine gravel.

Jimgreen Series

The Jimgreen series consists of very deep, very poorly drained soils that formed in organic material. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,130 to 4,160 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Euic Hemic Borosaprists

Typical pedon of Jimgreen muck, 0 to 1 percent slopes, about 1,000 feet south and 300 feet east of the northwest corner of sec. 21, T. 29 S., R. 32 E.; Diamond Swamp quadrangle.

Oa—0 to 10 inches; black (10YR 2/1) muck, dark gray (10YR 4/1) dry; massive; friable, nonsticky and nonplastic; many very fine, fine, and medium roots; few fine tubular pores; few fine distinct iron concentrations that are yellowish brown (10YR 5/4) when moist; about 43 percent organic matter; slightly acid (pH 6.1 in water); clear irregular boundary.

2Bw—10 to 12 inches; gray (2.5Y 4/0) and dark gray (2.5Y 5/0) mucky silt loam, gray (10YR 6/1) crushed and rubbed dry; massive; friable, slightly sticky and nonplastic; common very fine and fine roots; few fine tubular pores; few glass shards; neutral (pH 6.7 in water); clear wavy boundary.
3Oa—12 to 32 inches; black (10YR 2/1) muck, dark gray (10YR 4/1) dry; massive; friable, nonsticky and nonplastic; common very fine and fine roots; few fine tubular pores; few faint coatings of organic matter lining pores; slightly acid (pH 6.1 in water); clear smooth boundary.
3Oe1—32 to 44 inches; dark grayish brown (2.5Y 4/2) mucky peat, light gray (10YR 7/1) dry; about 30 percent fibers when rubbed; massive; friable, nonsticky and nonplastic; few very fine roots; few fine tubular pores; slightly acid (pH 6.5 in water); clear wavy boundary.
3Oe2—44 to 60 inches; very dark grayish brown (10YR 3/2) and very dark gray (10YR 3/1) mucky peat, light gray (10YR 7/1) dry; about 30 percent fibers when rubbed; massive; friable, nonsticky and nonplastic; neutral (pH 6.7).

Depth to bedrock is more than 60 inches. Depth to mucky peat (hemic material) is 25 to 35 inches. Some pedons are underlain by mineral soil material at a depth of more than 46 inches. All organic material is from herbaceous plants. Frequent ponding occurs in spring and summer. A high water table is present throughout the year.

Kegler Series

The Kegler series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in alluvium. They are on lake terraces. Slope is 2 to 5 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Haploduridic Durixerolls

Typical pedon of Kegler fine sandy loam, 2 to 5 percent slopes, about 1,500 feet south and 1,800 feet east of the northwest corner of sec. 33, T. 24 S., R. 31 E.; Dog Mountain quadrangle.

A—0 to 7 inches; grayish brown (10YR 5/2) fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; many fine roots; slightly alkaline (pH 7.4); clear smooth boundary.
BA—7 to 10 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common roots; common very fine tubular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
2Bw1—10 to 23 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few roots; common very fine tubular pores; slightly alkaline (pH 7.4); clear smooth boundary.
2Bw2—23 to 32 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; moderate medium and fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few roots; common very fine tubular pores; slightly alkaline (pH 7.6); abrupt wavy boundary.
3Bk—32 to 37 inches; very pale brown (10YR 8/3) silt loam, brown (10YR 5/3) moist; weak fine subangular blocky structure; hard, firm, slightly sticky and slightly plastic; few roots; common fine tubular pores; many white strongly effervescent carbonate filaments; slightly effervescent matrix; moderately alkaline (pH 8.4); abrupt wavy boundary.

3Bkqm—37 to 49 inches; white (10YR 8/2) indurated duripan, light yellowish brown (10YR 6/4) moist; massive; very rigid; thin coatings of opal on top of plates; slightly effervescent; abrupt wavy boundary.
3C—49 to 62 inches; very pale brown (10YR 8/3) silt loam, brown (10YR 5/3) moist; massive; hard, firm, slightly sticky and slightly plastic; moderately alkaline (pH 8.0).

Thickness of the solum and depth to the indurated duripan are 25 to 40 inches. Depth to bedrock is more than 60 inches. Depth to secondary carbonates is 20 to 30 inches. The particle-size control section averages 18 to 27 percent clay.

The A and BA horizons are neutral or slightly alkaline.

The 2Bw horizon is loam or sandy clay loam. It is 18 to 30 percent clay.

The 3Bk horizon is slightly alkaline or moderately alkaline.

The 3Bkqm horizon is 2 to 12 inches thick.

Kerrfield Series

The Kerrfield series consists of moderately deep, well drained soils that formed in alluvium over tuffaceous sedimentary rock and diatomaceous earth. The soils are on hills. Slope is 3 to 20 percent. Elevation is 4,200 to 4,800 feet. The mean annual precipitation is 8 to 11 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Durinodic Xeric Haplocambids

Typical pedon of Kerrfield loam, 3 to 20 percent slopes, about 500 feet south and 200 feet east of the northwest corner of sec. 2, T. 39 S., R. 37 E.; Pole Canyon quadrangle.

A—0 to 3 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine vesicular pores; 10 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.
Bw1—3 to 8 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine and fine irregular pores; 5 percent gravel; slightly alkaline (pH 7.5); clear wavy boundary.
Bw2—8 to 12 inches; very pale brown (10YR 7/4) loam, yellowish brown (10YR 5/4) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine irregular pores; 5 percent gravel; slightly alkaline (pH 7.5); clear wavy boundary.
2Bq—12 to 18 inches; very pale brown (10YR 7/4) sandy loam, yellowish brown (10YR 5/4) moist; weak coarse subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; common very fine and fine irregular pores; 10 percent durinodes; 5 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.
2Bkq—18 to 26 inches; very pale brown (10YR 7/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm and brittle, slightly sticky and slightly plastic; strongly effervescent with disseminated carbonates; 5 percent gravel; moderately alkaline (pH 8.2); clear wavy boundary.
2Bk—26 to 33 inches; very pale brown (10YR 7/4) very gravelly loamy coarse sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine irregular pores; strongly effervescent with

disseminated carbonates; 35 percent gravel; strongly alkaline (pH 8.6); abrupt wavy boundary.
3Cr—33 inches; tuffaceous sedimentary rock.

The solum is 12 to 30 inches thick. Depth to bedrock is 20 to 40 inches. Depth to the hard brittle layer is 10 to 20 inches. Calcium carbonate is at a depth of 10 to 20 inches. The particle-size control section averages 10 to 20 percent rock fragments, mainly gravel, and 10 to 18 percent clay.

The A horizon is 0 to 10 percent rock fragments and 20 to 27 percent clay.

The Bw horizon is loam or sandy loam. It is 0 to 10 percent rock fragments and 18 to 27 percent clay.

The 2Bq and 2Bkq horizons are 0 to 10 percent rock fragments and 10 to 18 percent clay. They are slightly alkaline or moderately alkaline.

The 2Bk horizon is gravelly loamy coarse sand or very gravelly loamy coarse sand. It is 25 to 50 percent rock fragments and 2 to 10 percent clay.

Klicker Series

The Klicker series consists of moderately deep, well drained soils that formed in residuum and colluvium over basalt, andesite, and welded tuff. The soils are on mountains. Slope is 15 to 60 percent. Elevation is 5,000 to 6,000 feet. The mean annual precipitation is 18 to 26 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Ultic Argixerolls

Typical pedon of Klicker extremely cobbly loam, 15 to 35 percent slopes, about 1,980 feet south and 660 feet west of the northeast corner of sec. 10, T. 22 S., R. 26 E.; Dry Mountain quadrangle.

Oi—3 inches to 0; slightly decomposed pine needles and twigs.
A1—0 to 3 inches; brown (10YR 5/3) extremely cobbly loam, dark brown (10YR 3/3) moist; weak medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, common fine, and few medium roots; 15 percent gravel, 35 percent cobbles, 15 percent stones, and 5 percent boulders; slightly acid (pH 6.4); clear smooth boundary.
A2—3 to 13 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and moderately plastic; common very fine, many fine, and few medium and coarse roots; common very fine and fine and few medium discontinuous irregular pores; 10 percent gravel, 25 percent cobbles, and 10 percent stones; neutral (pH 6.6); clear smooth boundary.
Bt1—13 to 17 inches; brown (10YR 5/3) very cobbly clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and common fine and medium roots; few fine and medium irregular pores; common distinct clay films on faces of peds; 10 percent gravel, 35 percent cobbles, and 10 percent stones; neutral (pH 6.8); clear smooth boundary.
Bt2—17 to 24 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 4/3) moist; strong coarse subangular blocky structure parting to moderate medium angular blocky; very hard, very firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium irregular pores; common prominent clay films on faces of peds; 10 percent gravel, 35 percent cobbles, and 10 percent stones; neutral (pH 6.8); abrupt wavy boundary.
R—24 inches; fractured basalt.

The mollic epipedon is 10 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 70 percent rock fragments, mainly cobbles, and 27 to 35 percent clay. The profile is slightly acid or neutral.

The A horizon is very gravelly loam or extremely cobbly loam. It is 35 to 75 percent rock fragments and 20 to 27 percent clay.

The Bt horizon is very cobbly clay loam or extremely cobbly clay loam. It is 35 to 70 percent rock fragments and 27 to 35 percent clay.

Krackle Series

The Krackle series consists of moderately deep, well drained soils that formed in colluvium over basalt and andesite. The soils are on mountains. Slope is 3 to 65 percent. Elevation is 5,400 to 9,700 feet. The mean annual precipitation is 14 to 40 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy-skeletal, mixed Typic Cryoborolls

Typical pedon of Krackle cobbly clay loam in an area of Krackle-Baconcamp-Hackwood association, 20 to 35 percent slopes; about 500 feet south and 2,200 feet east of the northwest corner of sec. 6, T. 41 S., R. 38 E.; "The V" quadrangle.

A—0 to 4 inches; grayish brown (10YR 5/2) cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 15 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.0); clear wavy boundary.

Bw—4 to 15 inches; brown (10YR 5/3) very stony clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; many very fine and fine roots; many very fine irregular pores; 10 percent gravel, 15 percent cobbles, and 20 percent stones; neutral (pH 7.0); gradual wavy boundary.

C—15 to 30 inches; yellowish brown (10YR 5/4) very stony clay loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, firm, moderately sticky and slightly plastic; common fine roots; many very fine irregular pores; 10 percent gravel, 20 percent cobbles, and 20 percent stones; neutral (pH 7.0); abrupt irregular boundary.

R—30 inches; fractured basalt.

The mollic epipedon is 10 to 20 inches thick. Depth to bedrock is 20 to 40 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly cobbles and stones, and 25 to 35 percent clay.

The A horizon is gravelly loam, very gravelly loam, or cobbly clay loam. It is 15 to 35 percent rock fragments and 20 to 35 percent clay.

The Bw horizon is very cobbly loam, very cobbly clay loam, or very stony clay loam. It is 35 to 50 percent rock fragments and 25 to 35 percent clay.

The C horizon is very cobbly loam or very stony clay loam. It is 35 to 50 percent rock fragments and 25 to 35 percent clay.

Ladycomb Series

The Ladycomb series consists of very shallow, well drained soils that formed in residuum over andesite, rhyolite, and basalt. The soils are on hills. Slope is 8 to 25 percent. Elevation is 4,700 to 5,300 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, mesic Lithic Haploxerolls

Typical pedon of Ladycomb cobbly clay loam, 8 to 25 percent slopes, about 1,700 feet north and 300 feet west of the southeast corner of sec. 11, T. 39 S., R. 34 E.; Ladycomb Peak quadrangle.

A—0 to 2 inches; grayish brown (10YR 5/2) cobbly clay loam, dark brown (10YR 3/3) moist; moderate fine granular structure; soft, very friable, moderately sticky and moderately plastic; many very fine and fine roots; common fine irregular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bw—2 to 8 inches; grayish brown (10YR 5/2) clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; many very fine, fine, and medium roots; many fine irregular and tubular pores; 5 percent gravel; neutral (pH 7.2); clear irregular boundary.

R—8 inches; highly fractured andesite; common strongly effervescent white masses on bedrock.

The mollic epipedon is 4 to 10 inches thick. Thickness of the solum and depth to bedrock are 4 to 10 inches. The particle-size control section averages 5 to 25 percent rock fragments and 25 to 35 percent clay.

The A horizon is 15 to 30 percent rock fragments and 27 to 35 percent clay.

The Bw horizon is sandy clay loam, loam, or clay loam. It is 5 to 15 percent rock fragments and 25 to 35 percent clay.

Lambranch Series

The Lambranch series consists of very deep, well drained soils that formed in alluvium. The soils are on alluvial fans. Slope is 2 to 8 percent. Elevation is 3,600 to 4,100 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, mesic Xeric Haplargids

Typical pedon of Lambranch gravelly loam, 2 to 8 percent slopes, about 600 feet south and 300 feet east of the northwest corner of sec. 17, T. 22 S., R. 35 E.; Bartlett Mountain quadrangle.

A—0 to 3 inches; grayish brown (10YR 5/2) gravelly loam, dark brown (10YR 3/3) moist; weak very fine granular structure; slightly hard, friable, slightly sticky and nonplastic; common very fine and fine roots; many very fine irregular pores; 20 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

BA—3 to 7 inches; grayish brown (10YR 5/2) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.6); gradual smooth boundary.

2Bt1—7 to 14 inches; brown (10YR 5/3) very gravelly clay, dark grayish brown (10YR 4/2) moist; moderate medium subangular blocky structure; hard, firm, very sticky and very plastic; common very fine and fine roots; many very fine irregular pores and few very fine and fine tubular pores; 30 percent gravel and 10 percent cobbles; common distinct clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

2Bt2—14 to 19 inches; brown (10YR 5/3) very cobbly sandy clay loam, dark brown (10YR 4/3) moist; massive; hard, firm, moderately sticky and moderately plastic; very few very fine roots; many very fine irregular pores; common distinct clay films

on coarse fragments; 35 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.6); clear wavy boundary.

2Bt3—19 to 27 inches; dark brown (10YR 4/3) very gravelly clay, dark brown (10YR 4/3) moist; massive; hard, firm, very sticky and very plastic; few very fine roots; common very fine and fine irregular pores; common distinct clay films on coarse fragments; 45 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.8); gradual wavy boundary.

2BC—27 to 60 inches; pale brown (10YR 6/3) very gravelly clay loam, dark brown (10YR 4/3) moist; massive; hard, firm, moderately sticky and moderately plastic; few very fine roots; common very fine and fine irregular pores; 40 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6).

Depth to bedrock is more than 60 inches. The particle-size control section averages 35 to 45 percent clay and 35 to 60 percent rock fragments.

The A horizon has chroma of 2 dry and 2 or 3 moist.

The 2Bt horizon has value of 4 or 5 dry or moist and chroma of 3 dry and 2 or 3 moist. It is 35 to 60 percent rock fragments and 25 to 45 percent clay. It is very gravelly clay loam, very gravelly clay, or very gravelly sandy clay loam.

The 2BC horizon has value of 6 dry and 4 or 5 moist, and it has chroma of 2 or 3 dry or moist. It is very gravelly clay loam and very cobbly loam. It is 35 to 60 percent rock fragments and 20 to 35 percent clay.

Lambring Series

The Lambring series consists of very deep, well drained soils that formed in colluvium derived from basalt and welded tuff. The soils are on hills and mountains. Slope is 20 to 70 percent. Elevation is 4,000 to 6,600 feet. The mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Pachic Haploxerolls

Typical pedon of Lambring very cobbly loam in an area of Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes; about 2,400 feet north and 2,250 feet west of the southeast corner of sec. 24, T. 26 S., R. 35 E.; Venator quadrangle.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark brown (10YR 2/2) moist; weak very fine granular structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; 5 percent stones, 15 percent gravel, and 15 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

A2—7 to 12 inches; brown (10YR 4/3) gravelly loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; 20 percent gravel; neutral (pH 7.2); clear smooth boundary.

A3—12 to 21 inches; brown (10YR 4/3) gravelly loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; 20 percent gravel and 10 percent cobbles; neutral (pH 7.2); clear wavy boundary.

AC—21 to 40 inches; brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; many fine roots; 15 percent gravel, 25 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.4); clear wavy boundary.

C—40 to 60 inches; brown (10YR 4/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, slightly sticky and slightly

plastic; common fine roots; 15 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4).

Bedrock is at a depth of 40 to 60 inches or more. The particle-size control section is 15 to 27 percent clay. It averages 35 to 60 percent rock fragments. The profile is neutral or slightly alkaline. Thickness of the mollic epipedon is 20 to 40 inches.

The upper part of the A horizon is very stony loam, very gravelly loam, very cobbly loam, or extremely stony loam. It is 35 to 70 percent rock fragments. The lower part is gravelly loam or very gravelly loam. It is 15 to 60 percent rock fragments.

The C horizon is very gravelly loam or very cobbly loam.

Langslet Series

The Langslet series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Xeric Aquicambids

Typical pedon of Langslet silty clay, 0 to 2 percent slopes, about 1,500 feet south and 300 feet east of the northwest corner of sec. 21, T. 37 S., R. 34 E.; Borax Lake quadrangle.

A1—0 to 7 inches; light gray (10YR 7/2) silty clay, dark brown (10YR 3/3) moist; moderate medium platy structure; very hard, very firm, very sticky and very plastic; many very fine and fine and common medium and coarse roots; many very fine vesicular and tubular pores; strongly effervescent with disseminated carbonates; slightly alkaline (pH 7.5); clear wavy boundary.

A2—7 to 14 inches; light brownish gray (10YR 6/2) silty clay, dark brown (10YR 4/3) moist; strong thick platy structure; very hard, very firm, very sticky and very plastic; many very fine and fine and common medium and coarse roots; many very fine vesicular and tubular pores; strongly effervescent with disseminated carbonates; slightly alkaline (pH 7.8); clear wavy boundary.

A3—14 to 23 inches; light brownish gray (10YR 6/2) sandy clay loam, brown (10YR 4/3) moist; strong thick platy structure; hard, firm, moderately sticky and slightly plastic; many fine and medium roots; many very fine irregular and tubular pores; strongly effervescent with disseminated carbonates; slightly alkaline (pH 7.8); clear wavy boundary.

C1—23 to 37 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; massive; hard, firm, moderately sticky and moderately plastic; common fine and medium roots; many very fine irregular and tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

C2—37 to 49 inches; very pale brown (10YR 7/3) silty clay, brown (10YR 4/3) moist; massive; very hard, very firm, moderately sticky and moderately plastic; few fine and medium roots; common very fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

C3—49 to 62 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; massive; hard, firm, moderately sticky and slightly plastic; few fine and medium roots; common very fine irregular and tubular pores; slightly alkaline (pH 7.4).

Bedrock is at a depth of more than 60 inches. A high water table is present in winter and spring. The particle-size control section averages 0 to 5 percent rock fragments, mainly gravel, and 35 to 50 percent clay.

The A horizon is 0 to 10 percent rock fragments and 35 to 50 percent clay. It has a

calcium carbonate equivalent of 5 to 10 percent. The upper part of the horizon is silty clay loam, and the lower part is clay loam or sandy clay loam.

The C horizon is stratified sandy clay loam, clay loam, silty clay loam, or silty clay. It is 0 to 5 percent rock fragments and 30 to 50 percent clay.

The Langslet soils in this survey area are a taxadjunct to the Langslet series because these soils have a mesic soil temperature regime and do not have a cambic diagnostic subsurface horizon.

Lawen Series

The Lawen series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 2 to 5 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Coarse-loamy, mixed, frigid Aridic Calcic Argixerolls

Typical pedon of Lawen fine sandy loam, 2 to 5 percent slopes, about 100 feet north and 400 feet west of the southeast corner of sec. 24, T. 23 S., R. 32 1/2 E.; Carson Point quadrangle.

A—0 to 10 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; many fine roots; slightly alkaline (pH 7.8); clear smooth boundary.

Bt—10 to 15 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; few faint clay films lining pores and bridging sand grains; moderately alkaline (pH 8.2); abrupt smooth boundary.

Btk—15 to 25 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to weak medium subangular blocky; hard, friable, nonsticky and nonplastic; common fine roots; common very fine tubular pores; few faint clay films lining pores and bridging sand grains; slightly effervescent with filaments of carbonates; moderately alkaline (pH 8.2); clear smooth boundary.

Bk—25 to 40 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; hard, friable, nonsticky and nonplastic; common very fine tubular pores; slightly effervescent with common filaments of carbonates; moderately alkaline (pH 8.2); clear wavy boundary.

C—40 to 60 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; moderately alkaline (pH 8.4).

Bedrock is at a depth of more than 60 inches. Depth to secondary carbonates is 15 to 26 inches. The particle-size control section averages 8 to 18 percent clay. The mollic epipedon is 10 to 14 inches thick.

The A horizon has chroma of 2 or 3 moist or dry. It is 5 to 10 percent clay.

The Bt and Btk horizons are fine sandy loam or loam. They are 10 to 18 percent clay. They are slightly alkaline or moderately alkaline.

The Bk and C horizons are slightly alkaline or moderately alkaline. They are 5 to 10 percent clay.

Leathers Series

The Leathers series consists of very deep, well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 3 percent. Elevation

is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Sodic Xeric Haplocambids

Typical pedon of Leathers silt loam, 1 to 3 percent slopes, about 550 feet south and 700 feet east of the northwest corner of sec. 26, T. 26 S., R. 30 E.; Northeast Harney Lake quadrangle.

A—0 to 2 inches; light brownish gray (10YR 6/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine roots; many very fine vesicular pores; slightly effervescent; trace of calcium carbonate; sodium adsorption ratio is 12; electrical conductivity is 1.84 millimhos per centimeter; strongly alkaline (pH 9.0); abrupt smooth boundary.

Bw1—2 to 9 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 4/3) moist; weak coarse subangular blocky structure; very hard, friable, very sticky and very plastic; many very fine roots; many very fine vesicular pores; sodium adsorption ratio is 22; electrical conductivity is 2.16 millimhos per centimeter; very strongly alkaline (pH 9.4); clear smooth boundary.

2Bw2—9 to 13 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; hard, friable, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; strongly effervescent; 1 percent calcium carbonate equivalent; sodium adsorption ratio is 20; electrical conductivity is 4.83 millimhos per centimeter; strongly alkaline (pH 8.9); gradual smooth boundary.

2Bk—13 to 24 inches; very pale brown (10YR 7/3) sandy loam, brown (10YR 5/3) moist; weak fine and medium subangular blocky structure; hard, firm, slightly sticky and slightly plastic; many very fine and fine roots; many very fine tubular pores; strongly effervescent with carbonates in filaments; 3 percent calcium carbonate equivalent; sodium adsorption ratio is 63; electrical conductivity is 15.02 millimhos per centimeter; strongly alkaline (pH 9.0); gradual smooth boundary.

2Bkq—24 to 28 inches; light gray (10YR 7/2) loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, nonsticky and nonplastic; common very fine roots; many very fine interstitial pores; 60 percent durinodes; strongly effervescent with carbonates in filaments; very strongly alkaline (pH 9.0); clear wavy boundary.

3Bk1—28 to 46 inches; light brownish gray (10YR 6/2) loamy fine sand, dark brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; strongly effervescent with carbonates in filaments; very strongly alkaline (pH 9.2); gradual smooth boundary.

4Bk2—46 to 52 inches; very pale brown (10YR 7/3) loam, pale brown (10YR 6/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few fine roots; many very fine interstitial pores; strongly effervescent with carbonates in filaments; very strongly alkaline (pH 9.2); clear smooth boundary.

5C—52 to 61 inches; very pale brown (10YR 7/3) sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; very strongly alkaline (pH 9.2).

Depth to the 5C horizon is 40 to 60 inches or more. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 0 to 10 percent gravel and 10 to 18 percent clay. The profile is strongly alkaline or very strongly alkaline throughout.

The A horizon is 0 to 5 percent gravel and 10 to 20 percent clay. The sodium adsorption ratio is 10 to 13.

The 2Bw and 2Bk horizons are 0 to 5 percent gravel. They are 10 to 20 percent

clay. The sodium adsorption ratio is 20 to 70. Electrical conductivity is 4 to 16 millimhos per centimeter.

The 2Bkq horizon has hue of 10YR or 2.5Y. It is 0 to 10 percent gravel and 10 to 18 percent clay. The sodium adsorption ratio is 20 to 70. Electrical conductivity is 4 to 16 millimhos per centimeter.

The 3Bk and 4Bk horizons have hue of 10YR or 2.5Y. They are loamy fine sand, loam, or sandy loam. They are 0 to 10 percent rock fragments and 5 to 18 percent clay. The sodium adsorption ratio is 20 to 50. Electrical conductivity is 4 to 8 millimhos per centimeter.

The sodium adsorption ratio of the 5C horizon is 13 to 25. Electrical conductivity is 1 to 4 millimhos per centimeter.

Leemorris Series

The Leemorris series consists of moderately deep, well drained soils that formed in residuum and colluvium over andesite and basalt. The soils are on mountains and plateaus. Slope is 3 to 35 percent. Elevation is 6,000 to 7,200 feet. The mean annual precipitation is 12 to 25 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Fine, montmorillonitic Argic Pachic Cryoborolls

Typical pedon of Leemorris gravelly clay loam in an area of Leemorris-Buckwilder complex, 15 to 35 percent slopes; about 2,100 feet north and 1,300 feet west of the southeast corner of sec. 13, T. 40 S., R. 34 E.; Van Horn Basin quadrangle.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) gravelly clay loam, very dark gray (10YR 3/1) moist; moderate medium granular structure; soft, very friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many fine tubular and irregular pores; 25 percent gravel; neutral (pH 7.0); clear wavy boundary.

A2—5 to 16 inches; dark grayish brown (10YR 4/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many fine irregular and tubular pores; 25 percent gravel; neutral (pH 7.0); gradual wavy boundary.

A3—16 to 26 inches; dark grayish brown (10YR 4/2) gravelly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many fine irregular and tubular pores; 15 percent gravel and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

2Bt—26 to 30 inches; dark yellowish brown (10YR 4/4) gravelly clay, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; hard, firm, very sticky and very plastic; few very fine, fine, and medium roots; many fine irregular and tubular pores; few faint clay films on face of peds; 15 percent gravel and 5 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

2R—30 inches; basalt.

The mollic epipedon is 16 to 34 inches thick, and it typically includes most of the 2Bt horizon. Thickness of the solum and depth to bedrock are 20 to 40 inches. The content of clay in the 2Bt horizon is 10 to 20 percent more than that of the A horizon.

The A horizon is 20 to 45 percent rock fragments and 27 to 35 percent clay. It is slightly alkaline or neutral.

The 2Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is gravelly clay with 40 to 60 percent clay. It is 15 to 35 percent rock fragments.

Legler Series

The Legler series consists of very deep, well drained soils that formed in alluvium. The soils are on stream terraces. Slope is 0 to 3 percent. Elevation is 3,400 to 4,200 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Xeric Haplocambids

Typical pedon of Legler silty clay loam, 0 to 3 percent slopes, about 1,600 feet north and 1,600 feet west of the southeast corner of sec. 7, T. 22 S., R. 36 E.; Upton Mountain quadrangle.

A—0 to 4 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few very fine irregular pores; 5 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.

Bw1—4 to 16 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine roots; few very fine irregular pores; 2 percent gravel; slightly alkaline (pH 7.8); clear wavy boundary.

Bw2—16 to 45 inches; yellowish brown (10YR 5/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; few very fine irregular pores; moderately alkaline (pH 8.4); gradual wavy boundary.

C—45 to 62 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few very fine irregular pores; moderately alkaline (pH 8.4).

Bedrock is at a depth of more than 60 inches. The solum is 40 to 60 inches thick. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 20 to 35 percent clay.

The A horizon is 0 to 10 percent rock fragments, mainly gravel, and 27 to 30 percent clay. It is neutral or slightly alkaline.

The Bw horizon is loam or silty clay loam. It is 0 to 10 percent rock fragments, mainly gravel, and 25 to 35 percent clay. It is slightly alkaline or moderately alkaline.

The C horizon is loam, gravelly loam, or silty clay loam. It is 0 to 30 percent rock fragments, mainly gravel, and 20 to 30 percent clay.

Locane Series

The Locane series consists of shallow, well drained soils that formed in residuum derived from welded tuff and basalt. The soils are on hills and plateaus. Slope is 5 to 25 percent. Elevation is 4,800 to 6,500 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Lithic Xeric Haplargids

Typical pedon of Locane very cobbly loam, 5 to 25 percent slopes, about 2,200 feet south and 300 feet west of the northeast corner of sec. 21, T. 41 S., R. 36 E.; Windy Point quadrangle.

A1—0 to 2 inches; light brownish gray (10YR 6/2) very cobbly loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many fine vesicular

pores; 20 percent gravel and 25 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.
A2—2 to 7 inches; light brownish gray (10YR 6/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; common fine, medium, and coarse roots; many very fine and fine irregular pores; 20 percent gravel and 25 percent cobbles; neutral (pH 7.0); clear wavy boundary.
Bt—7 to 15 inches; brown (7.5YR 5/4) very cobbly clay loam, dark brown (7.5YR 4/4) moist; weak medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine tubular pores; common faint clay films on faces of peds; 20 percent gravel and 25 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.
R—15 inches; welded tuff.

Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 35 to 55 percent rock fragments and 35 to 50 percent clay.

The A horizon has value of 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is 35 to 60 percent rock fragments and 18 to 27 percent clay.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry and 3 or 4 moist, and chroma of 3 or 4 moist or dry. It is very gravelly clay loam, very gravelly clay, or very cobbly clay loam. It is 35 to 55 percent rock fragments and 35 to 50 percent clay.

Lolak Series

The Lolak series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic (calcareous), frigid Vertic Halaquepts

Typical pedon of Lolak very fine sandy loam, 0 to 1 percent slopes, about 2,150 feet south and 400 feet east of the northwest corner of sec. 25, T. 23 S., R. 32½ E.; Carson Point quadrangle.

A—0 to 3 inches; light gray (10YR 6/1) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine roots; slightly alkaline (pH 7.8); abrupt smooth boundary.
Bn—3 to 10 inches; light brownish gray (10YR 6/2) clay loam, very dark grayish brown (10YR 3/2) moist; moderate fine prismatic structure parting to moderate fine and medium subangular blocky; hard, firm, moderately sticky and moderately plastic; many fine roots; common very fine tubular pores; electrical conductivity is 1.98 millimhos per centimeter; sodium adsorption ratio is 38; very strongly alkaline (pH 9.3); gradual smooth boundary.
Bkn1—10 to 19 inches; light yellowish brown (2.5Y 6/3) clay, olive brown (2.5Y 4/3) moist; weak fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; strongly effervescent with many medium soft masses of carbonates; electrical conductivity is 2.17 millimhos per centimeter; sodium adsorption ratio is 40; very strongly alkaline (pH 10.0); gradual smooth boundary.
Bkn2—19 to 28 inches; light yellowish brown (2.5Y 6/3) silty clay loam, olive brown (2.5Y 4/3) moist; weak fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; many faint reddish brown concentrations; strongly effervescent with

common medium soft masses of carbonates; very strongly alkaline (pH 9.1); gradual smooth boundary.
Bk—28 to 40 inches; light yellowish brown (2.5Y 6/3) silty clay loam, olive brown (2.5Y 4/3) moist; weak coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; many faint reddish brown concentrations; slightly effervescent; strongly alkaline (pH 8.8); gradual smooth boundary.
C—40 to 60 inches; pale yellow (2.5Y 7/3) loam, olive brown (2.5Y 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; strongly alkaline (pH 8.6).

Bedrock is at a depth of more than 60 inches. Frequent ponding occurs in spring. A high water table is present late in winter, in spring, and early in summer. The particle-size control section averages 35 to 50 percent clay.

The A horizon is 3 to 6 inches thick. It is slightly alkaline or moderately alkaline. The sodium adsorption ratio is 13 to 25.

The Bn horizon is clay loam or silty clay loam with 35 to 40 percent clay. The sodium adsorption ratio is 20 to 40.

The Bkn horizon is clay or silty clay with 40 to 60 percent clay. The sodium adsorption ratio is 20 to 40.

The Bk horizon is clay, silty clay, or silty clay loam with 35 to 50 percent clay. The sodium adsorption ratio is 10 to 25.

The C horizon is loam or clay loam with 25 to 40 percent clay. The sodium adsorption ratio is 5 to 15.

Lonely Series

The Lonely series consists of moderately deep, well drained soils that formed in colluvium derived from andesite, basalt, and welded tuff. The soils are on hills and plateaus. Slope is 2 to 30 percent. Elevation is 4,300 to 6,200 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Xeric Haplocambids

Typical pedon of Lonely cobbly clay loam in an area of Lonely-Robson association, 5 to 25 percent slopes; about 1,500 feet south and 2,200 feet west of the northeast corner of sec. 13, T. 40 S., R. 36 E.; Windy Point quadrangle.

A—0 to 4 inches; pale brown (10YR 6/3) cobbly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; many very fine, fine, and medium roots; many very fine tubular and irregular pores; 10 percent gravel, 10 percent cobbles, and 5 percent stones; neutral (pH 7.0); gradual wavy boundary.
Bw1—4 to 16 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; many very fine, fine, and medium roots; many very fine tubular and irregular pores; 10 percent gravel; neutral (pH 7.3); gradual wavy boundary.
Bw2—16 to 24 inches; light brownish gray (10YR 6/2) gravelly clay loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, moderately sticky and slightly plastic; common very fine, fine, and medium roots; many very fine tubular and irregular pores; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); abrupt irregular boundary.
R—24 inches; andesite.

Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size

control section averages 5 to 35 percent rock fragments, mainly gravel, and 27 to 35 percent clay.

The A horizon has value of 6 or 7 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is sandy clay loam or cobbly clay loam. It is 5 to 25 percent rock fragments and 27 to 35 percent clay.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is clay loam and gravelly clay loam. It is 5 to 25 percent rock fragments and 27 to 35 percent clay. It is neutral or slightly alkaline.

Longcreek Series

The Longcreek series consists of shallow, well drained soils that formed in residuum and colluvium derived from andesite, basalt, and welded tuff. The soils are on hills, mountains, and plateaus. Slope is 2 to 70 percent. Elevation is 3,600 to 6,600 feet. The mean annual precipitation is 9 to 14 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls

Typical pedon of Longcreek very cobbly loam in an area of Longcreek-Rock outcrop complex, 40 to 70 percent south slopes; about 1,500 feet south and 1,000 feet west of the northeast corner of sec. 22, T. 41 S., R. 37 E., "The V" quadrangle.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and common fine roots; many very fine and fine tubular and irregular pores; 10 percent gravel and 35 percent cobbles; neutral (pH 7.0); clear smooth boundary.

A2—3 to 7 inches; brown (7.5YR 4/2) very cobbly loam, dark brown (7.5YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine roots; many very fine and fine tubular and irregular pores; 10 percent gravel and 35 percent cobbles; neutral (pH 7.0); abrupt wavy boundary.

Bt1—7 to 11 inches; brown (7.5YR 4/4) very cobbly clay loam, dark brown (7.5YR 3/2) moist; strong medium angular blocky structure; very hard, firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine and fine tubular pores; common distinct clay films on faces of peds; 10 percent gravel and 35 percent cobbles; neutral (pH 7.2); clear wavy boundary.

Bt2—11 to 18 inches; brown (7.5YR 5/4) very cobbly clay, dark brown (7.5YR 4/4) moist; strong medium and coarse angular blocky structure; very hard, firm, very sticky and very plastic; few very fine and common fine and medium roots; common very fine and fine tubular pores; common distinct clay films on faces of peds; 10 percent gravel and 35 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

R—18 inches; fractured andesite.

The mollic epipedon is 7 to 12 inches thick. Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 35 to 55 percent rock fragments, mainly cobbles, and 35 to 50 percent clay. The profile has hue of 10YR or 7.5YR.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry and 2 moist. It is gravelly loam or very cobbly loam. It is 15 to 45 percent rock fragments and 18 to 27 percent clay.

The Bt horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 to 4 moist or dry. It is very gravelly clay loam, very cobbly clay loam, or very cobbly clay. It is 35 to 55 percent rock fragments and 35 to 50 percent clay.

Loupence Series

The Loupence series consists of very deep, moderately well drained soils that formed in alluvium. The soils are on stream terraces. Slope is 0 to 3 percent. Elevation is 3,500 to 3,900 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-silty, mixed, mesic Cumulic Haploxerolls

Typical pedon of Loupence silt loam, 0 to 2 percent slopes, about 1,600 feet south and 2,200 feet west of the northeast corner of sec. 7, T. 20 S., R. 34 E.; House Butte quadrangle.

A1—0 to 2 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and very fine roots; many very fine interstitial pores; neutral (pH 6.8); clear wavy boundary.

A2—2 to 11 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine tubular pores; neutral (pH 6.8); clear wavy boundary.

A3—11 to 24 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; few fine and very fine roots; few very fine tubular pores; neutral (pH 7.2); clear wavy boundary.

AC—24 to 49 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; few fine and very fine roots; few very fine tubular pores; slightly effervescent; slightly alkaline (pH 7.8); clear wavy boundary.

2C—49 to 60 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; very slightly effervescent; slightly alkaline (pH 7.4).

The mollic epipedon is 24 to 50 inches thick. Bedrock is at a depth of more than 60 inches. Calcium carbonate is at a depth of 21 to 60 inches. The profile is neutral or slightly alkaline. Occasional flooding occurs in spring. A high water table is present late in winter, in spring, and early in summer. The particle-size control section averages 18 to 27 percent clay.

The A and AC horizons have value of 3 moist and 4 or 5 dry. The A horizon has chroma of 1 or 2 moist and 2 or 3 dry, and the AC horizon has chroma of 2 or 3 moist or dry. They are 18 to 27 percent clay.

The 2C horizon has value of 3 or 4 moist and 5 dry, and it has chroma of 2 or 3 moist or dry. It is 10 to 15 percent clay.

Madeline Series

The Madeline series consists of shallow, well drained soils that formed in colluvium and residuum derived from rhyolite, andesite, welded tuff, and basalt. The soils are on hills, mountains, and plateaus. Slope is 2 to 60 percent. Elevation is 3,500 to 6,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical pedon of Madeline very stony loam, 15 to 40 percent south slopes, about 300 feet south and 1,850 feet west of the northeast corner of sec. 2, T. 24 S., R. 30 E.; Burns quadrangle.

A1—0 to 2 inches; reddish brown (5YR 5/3) very stony loam, dark reddish brown (5YR 3/3) moist; moderate medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; 15 percent gravel, 5 percent cobbles, and 15 percent stones; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—2 to 6 inches; reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) moist; weak medium subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

BA—6 to 10 inches; reddish brown (5YR 5/3) clay loam, dark reddish brown (5YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; 5 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

Bt—10 to 19 inches; reddish brown (5YR 5/4) cobbly clay loam, reddish brown (5YR 4/4) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; common faint clay films on faces of peds; 15 percent cobbles; slightly alkaline (pH 7.6); abrupt wavy boundary.

2R—19 inches; rhyolite.

Thickness of the solum and depth to bedrock are 10 to 20 inches. The profile has hue of 10YR, 7.5YR, or 5YR. The particle-size control section averages 35 to 50 percent clay and 5 to 30 percent rock fragments. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is very stony loam or gravelly clay loam. It is 15 to 50 percent rock fragments and 18 to 30 percent clay.

The Bt horizon has value of 4 to 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is clay loam, cobbly clay loam, or clay with 35 to 50 percent clay.

Mahoon Series

The Mahoon series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from diatomaceous earth and tuffaceous sedimentary rock. The soils are on hills and plateaus. Slope is 2 to 40 percent. Elevation is 3,400 to 4,800 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Aridic Palexerolls

Typical pedon of Mahoon very gravelly loam in an area of Gumble-Mahoon-Cagle complex, 2 to 40 percent slopes; about 200 feet south and 2,300 feet west of the northeast corner of sec. 1, T. 21 S., R. 36 E.; Petes Mountain quadrangle.

A—0 to 3 inches; grayish brown (10YR 5/2) very gravelly loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine and medium roots; common fine and medium

and few very fine and coarse vesicular pores; 50 percent gravel and 5 percent cobbles; neutral (pH 7.2); abrupt smooth boundary.

Bt1—3 to 9 inches; grayish brown (10YR 5/2) gravelly clay, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common very fine, fine, and medium irregular and tubular pores; common distinct clay films on faces of peds; 15 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.

2Bt2—9 to 18 inches; brown (10YR 5/3) gravelly clay, dark brown (10YR 3/3) moist; moderate medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few very fine, fine, and medium roots; few fine, medium, and coarse irregular and tubular pores; common distinct and few prominent clay films on faces of peds; 20 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

2Bt3—18 to 25 inches; pale brown (10YR 6/3) gravelly clay, dark brown (10YR 4/3) moist; moderate coarse angular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and medium and common fine roots; common distinct clay films on faces of peds; 25 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); gradual wavy boundary.

2Cr—25 inches; diatomaceous earth.

The mollic epipedon is 7 to 12 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. Depth to the claypan is 2 to 10 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel, and 40 to 50 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is silt loam, very gravelly loam, or very cobbly loam. It is 10 to 60 percent rock fragments and 18 to 27 percent clay. It is neutral or slightly alkaline.

The Bt and 2Bt horizons have value of 4 to 6 dry and 2 to 5 moist, and they have chroma of 2 to 4 moist or dry. The Bt horizon is gravelly clay loam or gravelly clay with 35 to 45 percent clay, and the 2Bt horizon is clay or gravelly clay with 40 to 60 percent clay. The horizons are 0 to 35 percent rock fragments. They are slightly alkaline or moderately alkaline.

Mcbain Series

The Mcbain series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 2 percent. Elevation is 4,100 to 4,200 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Sodic Xeric Haplocalcids

Typical pedon of Mcbain silt loam in an area of Skunkfarm-Mcbain-Doubleo complex, 0 to 2 percent slopes; about 1,490 feet west and 750 feet south of the northeast corner of sec. 28, T. 27 S., R. 31 E.; Coyote Buttes quadrangle.

A—0 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate medium granular structure; soft, very friable, moderately sticky and slightly plastic; many very fine and common fine roots; common fine interstitial pores; strongly effervescent with disseminated carbonates on faces of peds; sodium adsorption ratio is 125; electrical conductivity is 30 millimhos per centimeter; 13 percent calcium carbonate equivalent; strongly alkaline (pH 9.0); clear smooth boundary.

Bk1—5 to 11 inches; pale brown (10YR 6/3) loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; common very fine tubular pores; violently effervescent with disseminated carbonates on faces of peds; sodium adsorption ratio is 50; electrical conductivity is 9 millimhos per centimeter; 23 percent calcium carbonate equivalent; strongly alkaline (pH 8.9); diffuse wavy boundary.

Bk2—11 to 22 inches; light gray (10YR 7/2) loam, dark brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and slightly plastic; common very fine and few fine roots; many very fine tubular pores; violently effervescent with disseminated carbonates on faces of peds; sodium adsorption ratio is 14; electrical conductivity is 8 millimhos per centimeter; 25 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear wavy boundary.

Bk3—22 to 27 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate very fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; common very fine roots; many very fine tubular pores; violently effervescent with disseminated carbonates on faces of peds; moderately alkaline (pH 8.0); clear wavy boundary.

BC1—27 to 37 inches; pale brown (10YR 6/3) very fine sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine tubular pores; very slightly effervescent with disseminated carbonates on faces of peds; sodium adsorption ratio is 5; electrical conductivity is 3 millimhos per centimeter; trace of calcium carbonate; moderately alkaline (pH 8.0); clear wavy boundary.

BC2—37 to 43 inches; grayish brown (10YR 5/2) clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; common very fine tubular pores; very slightly effervescent with disseminated carbonates on faces of peds; moderately alkaline (pH 8.0); clear wavy boundary.

C—43 to 60 inches; pale brown (10YR 6/3) loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, friable, slightly sticky and nonplastic; few very fine roots; common very fine tubular pores; very slightly effervescent with disseminated carbonates on faces of peds; moderately alkaline (pH 8.0).

Depth to bedrock is more than 60 inches. The particle-size control section averages 18 to 27 percent clay. Depth to the calcic horizon is 3 to 7 inches. A high water table is present in spring.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 50 to 125. Electrical conductivity is 16 to 30 millimhos per centimeter. The calcium carbonate equivalent is 10 to 15 percent.

The Bk horizon has value of 5 to 7 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is clay loam and loam with 18 to 35 percent clay. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 13 to 50. Electrical conductivity is 4 to 8 millimhos per centimeter. The calcium carbonate equivalent is 15 to 30 percent.

The BC and C horizons have value of 5 to 7 dry and 3 or 4 moist, and they have chroma of 3 or 4 moist or dry. They are stratified layers of loam, clay loam, sandy loam, or very fine sandy loam with 10 to 30 percent clay. The sodium adsorption ratio is 0 to 5. Electrical conductivity is 0 to 4 millimhos per centimeter. The calcium carbonate equivalent is 0 to 1 percent.

McConnel Series

The McConnel series consists of very deep, somewhat excessively drained soils that formed in alluvium. The soils are on lake terraces. Slope is 0 to 20 percent. Elevation is 4,000 to 4,850 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Sandy-skeletal, mixed, mesic Xeric Haplocambids

Typical pedon of McConnel cobbly sandy loam, 3 to 8 percent slopes, about 2,000 feet south and 100 feet east of the northwest corner of sec. 29, T. 37 S., R. 33 E.; Fields quadrangle.

A—0 to 3 inches; grayish brown (10YR 5/2) cobbly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; many very fine and fine vesicular and irregular pores; 15 percent gravel and 15 percent cobbles; moderately alkaline (pH 8.2); clear smooth boundary.

Bw—3 to 11 inches; brown (10YR 4/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many very fine and fine and few medium roots; many very fine and common fine vesicular and irregular pores; 30 percent gravel; moderately alkaline (pH 8.4); clear wavy boundary.

2Bk1—11 to 25 inches; brown (10YR 5/3) very cobbly loamy sand, dark brown (10YR 3/3) moist; massive; soft, very friable, nonsticky and nonplastic; common fine and few medium and coarse roots; many very fine, common fine, and few medium vesicular and irregular pores; slightly effervescent with coatings of carbonates on rock fragments; 25 percent gravel, 15 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.2); clear wavy boundary.

2Bk2—25 to 52 inches; brown (10YR 5/3) extremely cobbly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; common fine and few medium and coarse roots; many very fine, fine, and medium vesicular and irregular pores; slightly effervescent with coatings of carbonates on rock fragments; 25 percent gravel, 35 percent cobbles, and 10 percent stones; moderately alkaline (pH 8.4); clear smooth boundary.

2Bk3—52 to 62 inches; brown (10YR 5/3) extremely gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, very friable, nonsticky and nonplastic; few fine roots; many very fine, fine, and medium vesicular and irregular pores; slightly effervescent with coatings of carbonates on rock fragments; 60 percent gravel and 10 percent cobbles; moderately alkaline (pH 8.4).

Thickness of the solum and depth to bedrock are more than 60 inches. Depth to carbonates is 10 to 20 inches. The particle-size control section averages 50 to 70 percent rock fragments, mainly gravel and cobbles, and 2 to 5 percent clay.

The A horizon has hue of 7.5YR or 10YR. It is cobbly sandy loam or very gravelly sandy loam. It is 15 to 35 percent rock fragments and 5 to 15 percent clay. It is slightly alkaline or moderately alkaline.

The Bw horizon has hue of 7.5YR or 10YR. It is gravelly sandy loam or gravelly loam. It is 15 to 30 percent rock fragments and 5 to 15 percent clay. It is slightly alkaline or moderately alkaline.

The 2Bk horizon has hue of 7.5YR or 10YR. It is extremely gravelly loamy sand, very cobbly loamy sand, and extremely cobbly loamy sand. It is 50 to 70 percent rock fragments and 2 to 5 percent clay. It is slightly alkaline to strongly alkaline. It has a calcium carbonate equivalent of 2 to 5 percent.

Merlin Series

The Merlin series consists of shallow, well drained soils that formed in residuum and colluvium derived from welded tuff, andesite, rhyolite, and basalt. The soils are on hills and plateaus. Slope is 0 to 40 percent. Elevation is 3,900 to 6,000 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical pedon of Merlin very cobbly loam in an area of Royst-Merlin complex, 2 to 20 percent slopes; about 1,980 feet south and 1,980 feet west of the northeast corner of sec. 22, T. 21 S., R. 27 E.; Egypt Canyon quadrangle.

A1—0 to 3 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many very fine and common fine roots; few very fine and common fine and medium vesicular pores; 15 percent gravel, 30 percent cobbles, and 10 percent stones; neutral (pH 7.2); clear smooth boundary.

A2—3 to 7 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; few very fine and common fine and medium irregular pores; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt1—7 to 12 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; weak coarse subangular blocky structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and medium and common fine roots; few fine and common medium irregular pores; common distinct clay films on faces of peds; 10 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

2Bt2—12 to 18 inches; light yellowish brown (10YR 6/4) clay, dark yellowish brown (10YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; few fine and medium roots; few fine and medium irregular pores; common prominent clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.6); abrupt smooth boundary.

2R—18 inches; fractured welded tuff.

The mollic epipedon is 7 to 15 inches thick. Thickness of the solum and depth to bedrock are 10 to 20 inches. Depth to the claypan is 2 to 14 inches. The particle-size control section averages 0 to 25 percent rock fragments, mainly cobbles, and 40 to 60 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It very gravelly loam, very cobbly loam, very cobbly clay loam, stony loam, very stony loam, or very stony clay loam. It is 20 to 60 percent rock fragments and 20 to 30 percent clay. It is slightly acid to slightly alkaline.

The Bt and 2Bt horizons have hue of 7.5YR or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry. The Bt horizon is gravelly clay loam or clay loam with 30 to 40 percent clay, and the 2Bt horizon is clay or cobbly clay with 50 to 70 percent clay. The horizons are neutral or slightly alkaline.

Mesman Series

The Mesman series consists of very deep, well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 5 percent. Elevation

is 4,400 to 4,600 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Xeric Natrargids

Typical pedon of Mesman fine sandy loam in an area of Mesman-Norad complex, 0 to 2 percent slopes; about 200 feet north and 2,300 feet west of the southeast corner of sec. 4, T. 32 S., R. 27 E.; Steamboat Point quadrangle.

A—0 to 4 inches; light brownish gray (10YR 6/2) fine sandy loam, dark grayish brown (10YR 4/2) moist; weak thick platy structure parting to weak fine granular; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine, fine, and medium and few coarse vesicular pores; moderately alkaline (pH 8.0); abrupt smooth boundary.

2Btn—4 to 12 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak fine prismatic structure parting to strong medium angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine and fine and few medium roots; common very fine and fine and few medium irregular and tubular pores; common faint dark brown (7.5YR 4/3) clay films on faces of peds; moderately alkaline (pH 8.4); abrupt smooth boundary.

2Btkn—12 to 26 inches; light brownish gray (10YR 6/2) loam, grayish brown (10YR 5/2) moist; weak fine prismatic structure parting to weak medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; common fine and few very fine and medium irregular and tubular pores; strongly effervescent with disseminated carbonates; common fine seams and filaments of white volcanic ash; few faint dark brown (7.5YR 4/3) clay films on faces of peds; sodium adsorption ratio is 27; strongly alkaline (pH 9.0); diffuse smooth boundary.

2Bn—26 to 62 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; strong coarse prismatic structure parting to strong coarse angular blocky; very hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine irregular and tubular pores; moderately alkaline (pH 8.4).

Bedrock is at a depth of more than 60 inches. Depth to the natric horizon is 2 to 7 inches. Calcium carbonate is at a depth of 10 to 40 inches. The particle-size control section averages 18 to 35 percent clay.

The A horizon is fine sandy loam or loamy fine sand with 2 to 10 percent clay. The sodium adsorption ratio is 5 to 30. Electrical conductivity is 2 to 8 millimhos per centimeter. The horizon is slightly alkaline or moderately alkaline.

The 2Btn and 2Btkn horizons are loam, silty clay loam, or clay loam with 18 to 35 percent clay. The sodium adsorption ratio is 25 to 70. Electrical conductivity is 16 to 32 millimhos per centimeter. The horizons are moderately alkaline or strongly alkaline.

The 2Bn horizon is silt loam, loam, or clay loam with 10 to 30 percent clay. The sodium adsorption ratio is 20 to 70. Electrical conductivity is 16 to 32 millimhos per centimeter. The structure of the horizon is derived from fractured lacustrine sediment. Thin strata of volcanic ash are in some pedons.

Middlebox Series

The Middlebox series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from tuffaceous and pumiceous material. The soils are on hills. Slope is 5 to 40 percent. Elevation is 4,700 to 6,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy-skeletal, nonacid, frigid Vitrandic Torriorthents

Typical pedon of Middlebox gravelly sandy loam in an area of Middlebox complex, 15 to 40 percent slopes; about 1,800 feet north and 1,300 feet east of the southwest corner of sec. 33, T. 38 S., R. 33 E.; Rincon Flat quadrangle.

A—0 to 4 inches; light brownish gray (10YR 6/2) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; many very fine irregular pores; 30 percent sand-sized ash; 20 percent gravel-sized pumice; neutral (pH 6.9); clear wavy boundary.

AC—4 to 10 inches; pale brown (10YR 6/3) very gravelly sandy clay loam, dark brown (10YR 3/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine irregular pores; 30 percent sand-sized ash; 25 percent gravel and 10 percent cobbles; neutral (pH 7.1); clear wavy boundary.

C—10 to 35 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; common coarse and medium roots; many very fine irregular pores; 30 percent sand-sized ash; 20 percent gravel and 25 percent cobbles; neutral (pH 7.1); abrupt irregular boundary.

Cr—35 inches; weathered pumiceous tuff.

The solum is 7 to 20 inches thick. The depth to bedrock is 20 to 40 inches. The particle-size control section averages 35 to 50 percent rock fragments and 15 to 30 percent clay. The profile has hue of 7.5YR or 10YR. It is neutral or slightly alkaline.

The A horizon is 15 to 35 percent rock fragments and 10 to 20 percent clay. It is less than 1 percent organic matter.

The AC horizon is very gravelly sandy loam or very gravelly sandy clay loam. It is 35 to 50 percent gravel and cobbles.

The C horizon is very cobbly sandy loam or very cobbly sandy clay loam. It is 35 to 50 percent rock fragments and 15 to 30 percent clay.

Minam Series

The Minam series consists of very deep, well drained soils that formed in alluvium. The soils are in mountain drainageways. Slope is 0 to 12 percent. Elevation is 4,500 to 5,300 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Vitrandic Haploxerolls

Typical pedon of Minam silt loam in an area of Minam-Welch complex, 0 to 3 percent slopes; about 800 feet south and 700 feet east of the northwest corner of sec. 31, T. 21 S., R. 27 E.; Dry Mountain quadrangle.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium platy structure parting to weak fine granular; slightly hard, very friable, moderately sticky and moderately plastic; common fine roots; common fine vesicular pores; 5 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

A2—3 to 18 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine roots; few fine irregular pores; 5 percent gravel; neutral (pH 6.7); gradual smooth boundary.

A3—18 to 29 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard,

friable, moderately sticky and moderately plastic; common fine roots; common fine irregular pores; 5 percent gravel; neutral (pH 6.8); gradual smooth boundary.

Bw1—29 to 39 inches; brown (10YR 4/3) loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine irregular pores; 10 percent gravel; neutral (pH 7.0); clear smooth boundary.

2Bw2—39 to 52 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine irregular pores; 15 percent gravel; neutral (pH 7.0); gradual smooth boundary.

2Bw3—52 to 62 inches; yellowish brown (10YR 5/4) gravelly sandy loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; few fine irregular pores; 30 percent gravel; neutral (pH 7.0).

The mollic epipedon is 20 to 40 inches thick. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 18 to 27 percent clay.

The A1 horizon is silt loam or gravelly silt loam. It is 0 to 25 percent rock fragments and 15 to 25 percent clay.

The A2 and A3 horizons are silt loam, loam, or gravelly silt loam. They are 0 to 25 percent rock fragments and 18 to 27 percent clay.

The Bw1 horizon is silt loam or loam. It is 5 to 15 percent rock fragments and 18 to 27 percent clay.

The 2Bw horizon is gravelly sandy loam and gravelly sandy clay loam. It is 15 to 25 percent rock fragments and 15 to 30 percent clay.

The Minam soils in this survey area are not in the Vitrandic subgroup; therefore, they are a taxadjunct to the Minam series.

Modoc Series

The Modoc series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in old alluvium. They are on alluvial fans. Slope is 2 to 15 percent. Elevation is 3,700 to 4,000 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Argiduridic Durixerolls

Typical pedon of Modoc gravelly sandy loam, 2 to 15 percent slopes, about 500 feet south and 1,000 feet east of the northwest corner of sec. 12, T. 20 S., R. 33½ E.; House Butte quadrangle.

A1—0 to 2 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; moderate very thin platy structure parting to moderate very fine granular; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine interstitial pores; 15 percent gravel; neutral (pH 6.8); clear wavy boundary.

A2—2 to 13 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine tubular pores; 10 percent gravel; neutral (pH 7.0); clear wavy boundary.

Bt1—13 to 22 inches; light yellowish brown (10YR 6/4) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and slightly plastic; few very fine, fine, and coarse roots; few very fine tubular pores; few faint clay films on faces of peds and lining pores; 10 percent gravel; neutral (pH 7.0); clear wavy boundary.

Bt2—22 to 25 inches; yellow (10YR 7/6) gravelly clay loam, dark yellowish brown (10YR 4/6) moist; weak medium subangular blocky structure; very hard, friable, moderately sticky and moderately plastic; common distinct clay films on faces of peds; 30 percent gravel; neutral (pH 7.0); abrupt wavy boundary.
Bqm—25 to 41 inches; indurated duripan; clear wavy boundary.
2Ckq—41 to 60 inches; yellow (10YR 7/6) extremely gravelly coarse sandy loam, dark yellowish brown (10YR 4/6) moist; massive; slightly hard and brittle, very friable, nonsticky and nonplastic; 85 percent gravel; slightly effervescent; slightly alkaline (pH 7.6).

The mollic epipedon is 10 to 13 inches thick. Thickness of the solum and depth to the duripan are 20 to 25 inches. Depth to bedrock is more than 60 inches. The particle-size control section averages 15 to 30 percent rock fragments, mainly gravel, and 25 to 35 percent clay.

The A horizon has chroma of 2 or 3 dry and 3 moist.

The Bt horizon has value of 4 to 6 dry and 4 or 5 moist, and it has chroma of 3 to 6 dry and 3 to 6 moist. It is loam, clay loam, or gravelly clay loam.

The Bqm horizon is 5 to 20 inches thick and is 70 to 85 percent gravel.

The 2Ckq horizon has value of 4 or 5 moist and chroma of 3 to 6 moist or dry.

Morfitt Series

The Morfitt series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,600 to 4,800 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Xeric Haplargids

Typical pedon of Morfitt loam, 0 to 2 percent slopes, about 300 feet north and 800 feet east of the southwest corner of sec. 31, T. 30 S., R. 27 E.; Rock Camp Draw quadrangle.

A—0 to 2 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; moderate thick platy structure parting to moderate very fine and fine granular; soft, very friable, slightly sticky and slightly plastic; few very fine roots; 5 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.
Bt1—2 to 8 inches; gray (10YR 6/1) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure parting to moderate very fine and fine granular; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common distinct and faint clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.
Bt2—8 to 20 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; weak medium prismatic structure parting to moderate coarse and medium subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and few fine and medium roots; continuous distinct clay films on faces of peds; moderately alkaline (pH 8.0); clear smooth boundary.
Bt3—20 to 32 inches; light brownish gray (10YR 6/2) clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; common very fine roots; few distinct and common faint clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.
Bt4—32 to 41 inches; light brownish gray (10YR 6/2) loam, dark yellowish brown (10YR 3/4) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine roots; common faint clay films on faces of peds; slightly alkaline (pH 7.8); clear smooth boundary.

C—41 to 60 inches; light gray (10YR 7/2) loam, dark brown (10YR 3/3) moist; massive; soft, very friable, slightly sticky and slightly plastic; few very fine roots; slightly alkaline (pH 7.6).

Bedrock is at a depth of more than 60 inches. The solum is 30 to 50 inches thick. Occasional ponding occurs in spring. The particle-size control section averages 25 to 35 percent clay.

The A horizon is 2 to 5 inches thick. It is 0 to 5 percent rock fragments and 18 to 27 percent clay.

The Bt horizon is loam, silty clay loam, or clay loam with 25 to 35 percent clay. It is slightly alkaline or moderately alkaline.

The C horizon is loam or clay loam with 20 to 30 percent clay.

Morganhills Series

The Morganhills series consists of shallow, well drained soils that formed in colluvium and residuum derived from tuffaceous sandstone. The soils are on hills. Slope is 2 to 35 percent. Elevation is 4,000 to 5,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy, nonacid, frigid, shallow Vitrandic Torriorthents

Typical pedon of Morganhills sandy loam in an area of Morganhills complex, 2 to 35 percent slopes; about 2,600 feet north and 1,750 feet west of the southeast corner of sec. 35, T. 22 S., R. 31 E.; Poison Creek Slough quadrangle.

A—0 to 8 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine roots; common fine tubular pores; 10 percent gravel; neutral (pH 7.2); clear wavy boundary.

C1—8 to 15 inches; brown (10YR 5/3) gravelly sandy loam, dark brown (10YR 3/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; common fine tubular pores; 20 percent sandstone gravel; slightly alkaline (pH 7.4); abrupt wavy boundary.

C2—15 to 17 inches; pale brown (10YR 6/3) very gravelly sandy loam, brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; 50 percent sandstone gravel; 5 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

Cr—17 inches; weathered tuffaceous sandstone.

Depth to bedrock is 10 to 20 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel, and 5 to 20 percent clay. It is neutral or slightly alkaline. The profile has hue of 10YR or 7.5YR.

The A horizon has value of 5 to 7 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is 5 to 15 percent gravel.

The C horizon has value of 5 to 7 dry and 3 or 4 moist, and it has chroma of 3 moist and 2 to 4 dry. It is gravelly sandy loam, very gravelly sandy loam, or gravelly loamy sand. It is 5 to 55 percent rock fragments and 5 to 20 percent clay. The very gravelly strata typically are immediately above the bedrock and are 1 to 4 inches thick.

Mound Series

The Mound series consists of deep, well drained soils that formed in residuum derived from tuff. The soils are on hills. Slope is 2 to 20 percent. Elevation is 5,100 to

5,600 feet. The mean annual precipitation is 16 to 20 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Pachic Ultic Argixerolls

Typical pedon of Mound stony loam, 2 to 20 percent slopes, about 2,100 feet south and 1,400 feet east of the northwest corner of sec. 28, T. 21 S., R. 32 E.; Devine Ridge South quadrangle.

Oi—0.5 inch to 0; slightly decomposed ponderosa pine needles.
A1—0 to 3 inches; brown (10YR 5/3) stony loam, very dark grayish brown (10YR 3/2) moist; moderate very fine granular structure; soft, very friable, nonsticky and nonplastic; many very fine and common fine roots; many very fine vesicular pores; 10 percent gravel, 15 percent stones, and 5 percent boulders; slightly acid (pH 6.2); clear wavy boundary.
A2—3 to 10 inches; yellowish brown (10YR 5/4) very stony loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine and few medium roots; few very fine tubular pores; 25 percent gravel, 15 percent stones, and 5 percent boulders; neutral (pH 6.6); clear wavy boundary.
Bt1—10 to 20 inches; brown (10YR 5/3) very stony clay, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; hard, firm, slightly sticky and moderately plastic; common fine roots; few very fine tubular pores; many distinct clay films on faces of peds and in pores; 25 percent gravel, 10 percent cobbles, 15 percent stones, and 5 percent boulders; few prominent concentrations of white (10YR 8/2) ash; slightly acid (pH 6.4); clear wavy boundary.
Bt2—20 to 26 inches; brown (10YR 5/3) very stony clay, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; very hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; many distinct clay films on faces of peds and lining pores; 20 percent gravel, 5 percent cobbles, 20 percent stones, and 10 percent boulders; slightly acid (pH 6.4); clear wavy boundary.
Bt3—26 to 38 inches; strong brown (7.5YR 5/6) very stony clay, dark brown (7.5YR 4/4) moist; strong medium prismatic structure parting to strong medium angular blocky; extremely hard, extremely firm, very sticky and very plastic; few very fine roots; few very fine tubular pores; many prominent clay films on faces of peds and lining pores; 10 percent gravel, 5 percent cobbles, 20 percent stones, and 10 percent boulders; slightly acid (pH 6.4); clear wavy boundary.
Bt4—38 to 53 inches; strong brown (7.5YR 5/6) very stony clay, strong brown (7.5YR 4/6) moist; weak coarse prismatic structure; extremely hard, extremely firm, moderately sticky and moderately plastic; common distinct clay films on faces of peds; 15 percent gravel, 5 percent cobbles, 10 percent stones, and 5 percent boulders; slightly acid (pH 6.2); clear wavy boundary.
R—53 inches; welded tuff.

The mollic epipedon is 20 to 29 inches thick. Thickness of the solum and depth to welded tuff are 40 to 60 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly stones, and 35 to 50 percent clay. The profile is slightly acid or neutral.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry and 1 to 3 moist. It is 25 to 50 percent rock fragments and 20 to 27 percent clay.

The Bt horizon has hue of 10YR and 7.5YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 3 to 6 moist or dry. The upper part is very stony clay, very stony clay loam, or very cobbly clay, and the lower part is very stony clay. The horizon is 35 to 60 percent rock fragments and 35 to 50 percent clay.

Nevador Series

The Nevador series consists of very deep, well drained soils that formed in alluvium. The soils are on alluvial fans and lake terraces. Slope is 0 to 12 percent. Elevation is 4,500 to 5,000 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Durinodic Xeric Haplargids

Typical pedon of Nevador very gravelly sandy loam, 3 to 12 percent slopes, about 900 feet south and 3,500 feet west of the northeast corner of sec. 3, T. 39 S., R. 37 E.; Pole Canyon quadrangle.

A—0 to 3 inches; very pale brown (10YR 7/3) very gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine and fine vesicular and irregular pores; 50 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); clear wavy boundary.

BA—3 to 7 inches; light gray (10YR 7/2) loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine vesicular and irregular pores; 10 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

Bt1—7 to 14 inches; yellowish brown (10YR 5/6) clay loam, dark yellowish brown (10YR 4/4) moist; strong fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; many very fine irregular pores; many distinct clay films on faces of peds; 5 percent gravel; moderately alkaline (pH 8.0); gradual smooth boundary.

Bt2—14 to 18 inches; brownish yellow (10YR 6/6) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular pores; many distinct clay films on faces of peds; 5 percent gravel; moderately alkaline (pH 8.4); gradual smooth boundary.

2Bkq—18 to 32 inches; very pale brown (10YR 8/4) sandy loam, yellowish brown (10YR 5/4) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few fine roots; few very fine tubular and irregular pores; 5 percent durinodes; strongly effervescent with disseminated carbonates and few fine filaments of carbonates; 10 percent gravel; weak discontinuous cementation; moderately alkaline (pH 8.2); clear wavy boundary

2Ck—32 to 62 inches; very pale brown (10YR 8/3) gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; soft, very friable, nonsticky and nonplastic; common very fine irregular pores; strongly effervescent with disseminated carbonates; 30 percent gravel; moderately alkaline (pH 8.2).

The solum is 20 to 40 inches thick. Bedrock is at a depth of more than 60 inches. Depth to the weak discontinuous cemented layer and depth to carbonates are 12 to 24 inches. The particle-size control section averages 0 to 15 percent rock fragments, mainly gravel, and 27 to 35 percent clay.

The A horizon has value of 6 or 7 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is sandy loam or very gravelly sandy loam. It is 5 to 60 percent rock fragments and 10 to 15 percent clay.

The Bt horizon is 0 to 15 percent rock fragments and 27 to 35 percent clay.

The 2Bkq horizon has value of 7 or 8 dry and chroma of 3 or 4 moist or dry. It is 0 to 15 percent rock fragments and 8 to 15 percent clay.

The 2Ck horizon has value of 7 or 8 dry and chroma of 3 or 4 moist or dry. It is

sandy loam or gravelly sandy loam. It is 10 to 35 percent rock fragments and 5 to 15 percent clay.

Ninemile Series

The Ninemile series consists of shallow, well drained soils that formed in residuum and colluvium derived from andesite, basalt, rhyolite, and welded tuff (fig. 15). The soils are on hills, plateaus, and mountains. Slope is 0 to 60 percent. Elevation is 4,200 to 7,500 feet. The mean annual precipitation is 10 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid Lithic Argixerolls

Typical pedon of Ninemile very cobbly clay loam, low precipitation, 2 to 30 percent slopes, about 2,200 feet south and 2,200 feet west of the northeast corner of sec. 3, T. 41 S., R. 37 E.; "The V" quadrangle.

A—0 to 4 inches; grayish brown (10YR 5/2) very cobbly clay loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; hard, very friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; many very fine and fine tubular and irregular pores; 25 percent gravel, 25 percent cobbles, and 5 percent stones; neutral (pH 6.8); clear wavy boundary.

Bt1—4 to 10 inches; grayish brown (10YR 5/2) gravelly clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, very sticky and moderately plastic; common very fine, fine, and medium roots; many very fine and fine tubular and irregular pores; few faint clay films on faces of peds; 20 percent gravel and 10 percent cobbles; neutral (pH 6.8); clear smooth boundary.

Bt2—10 to 16 inches; brown (10YR 4/3) cobbly clay, dark brown (10YR 3/3) moist; strong medium angular blocky structure; hard, friable, very sticky and very plastic; few very fine and fine roots; many very fine and fine tubular and irregular pores; common prominent clay films on faces of peds; 10 percent gravel and 20 percent cobbles; neutral (pH 6.8); clear broken boundary.

2R—16 inches; fractured basalt.

The mollic epipedon is 7 to 16 inches thick, and it commonly includes part or all of the Bt horizon. Thickness of the solum and depth to bedrock are 10 to 20 inches. Depth to the claypan is 2 to 7 inches. The particle-size control section averages 0 to 35 percent rock fragments, mainly gravel and cobbles, and 40 to 60 percent clay.

The A horizon has value of 3 to 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is gravelly loam, very cobbly loam, very cobbly clay loam, very stony clay loam, or extremely stony silt loam. It is 15 to 75 percent rock fragments and 15 to 30 percent clay. It is neutral or slightly alkaline.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry. It is clay, gravelly clay, or cobbly clay. It is 0 to 30 percent rock fragments and 40 to 60 percent clay. It is neutral or slightly alkaline.

Noname Series

The Noname series consists of very shallow and shallow, well drained soils that formed in colluvium and residuum over andesite and basalt. The soils are on mountains and hills. Slope is 3 to 80 percent. Elevation is 5,800 to 9,200 feet. The mean annual precipitation is 12 to 35 inches, and the mean annual air temperature is 40 to 43 degrees F.



Figure 15.—Typical profile of a Ninemile soil. Basalt is at a depth of 16 inches. The upper 8 inches of the bedrock has discontinuous silica and carbonate pendants.

Taxonomic classification: Loamy, mixed Lithic Cryochrepts

Typical pedon of Noname stony clay loam in an area of Noname-Dickle complex, 3 to 12 percent slopes; about 2,000 feet south and 1,000 feet east of the northwest corner of sec. 12, T. 40 S., R. 37 E., "The V" quadrangle.

A—0 to 3 inches; pale brown (10YR 6/3) stony clay loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; many fine and medium roots; many very fine and fine tubular pores; 10 percent gravel, 5 percent cobbles, and 5 percent stones; slightly acid (pH 6.4); gradual wavy boundary.
Bw1—3 to 6 inches; yellowish brown (10YR 5/4) clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; soft, very friable, moderately sticky and slightly plastic; many fine and medium roots; many very fine and fine tubular pores; 10 percent gravel and 3 percent cobbles; slightly acid (pH 6.4); clear wavy boundary.
Bw2—6 to 12 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; common fine and medium roots; many very fine and fine tubular pores; 10 percent gravel and 3 percent cobbles; slightly acid (pH 6.4); clear irregular boundary.
R—12 inches; andesite.

Thickness of the solum and depth to bedrock are 4 to 14 inches. The particle-size control section averages 10 to 35 percent rock fragments and 20 to 35 percent clay. It is slightly acid or neutral.

The A horizon is stony clay loam or very stony loam. It is 10 to 50 percent rock fragments and 20 to 30 percent clay.

The Bw horizon is loam, clay loam, or cobbly clay loam. It is 10 to 30 percent rock fragments and 20 to 35 percent clay.

Norad Series

The Norad series consists of very deep, well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 2 percent. Elevation is 4,300 to 4,600 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-silty, mixed, mesic Xeric Haplargids

Typical pedon of Norad silt loam, 0 to 1 percent slopes, about 1,000 feet south and 1,750 feet east of the northwest corner of sec. 3, T. 35 S., R. 31 E.; Blitzen quadrangle.

A1—0 to 3 inches; light brownish gray (10YR 6/2) silt loam, brown (10YR 4/3) moist; weak medium and thick platy structure; slightly hard, friable, moderately sticky and slightly plastic; many fine roots; many fine and medium vesicular pores; neutral (pH 7.2); clear smooth boundary.
A2—3 to 7 inches; pale brown (10YR 6/3) silty clay loam, dark grayish brown (10YR 4/2) moist; moderate fine granular structure; slightly hard, friable, very sticky and moderately plastic; many fine roots; many very fine irregular pores; neutral (pH 7.3); clear smooth boundary.
2Bt—7 to 23 inches; light brownish gray (10YR 6/2) silty clay loam, brown (10YR 4/3) moist; moderate very fine and fine subangular blocky structure; slightly hard, friable, very sticky and moderately plastic; many fine roots; many very fine tubular pores; common distinct clay films on faces of peds; moderately alkaline (pH 8.0); gradual smooth boundary.
2Btk—23 to 34 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; black manganese stains on faces of peds; weak fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; many fine roots; many very fine tubular pores; few distinct clay films on faces

of peds; slightly effervescent; moderately alkaline (pH 8.2); gradual wavy boundary.
2C1—34 to 46 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; massive; hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; semiconsolidated lake sediment with rocklike structure; neutral (pH 7.2); abrupt wavy boundary.
3C2—46 to 52 inches; white (10YR 8/2) silt loam, pale brown (10YR 6/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine roots; many very fine tubular pores; semiconsolidated lake sediment with rocklike structure; neutral (pH 7.2); clear wavy boundary.
4C3—52 to 61 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; many fine roots; many very fine tubular pores; high percentage of diatomaceous earth or volcanic ash; semiconsolidated lake sediment with rocklike structure; slightly alkaline (pH 7.4).

Bedrock is at a depth of more than 60 inches. The solum is 12 to 30 inches thick. A high water table is present late in winter and in spring. The particle-size control section averages 27 to 35 percent clay.

The Bt horizon is silty clay loam or silty clay with 27 to 45 percent clay. It is neutral to moderately alkaline.

The C horizon is stratified silty clay loam, clay loam, silt loam, or loam with thin strata of volcanic ash or diatomaceous earth in the lower subhorizons. The horizon is neutral to moderately alkaline.

Nuss Series

The Nuss series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and welded tuff. The soils are on hills and plateaus. Slope is 20 to 60 percent. Elevation is 4,000 to 6,000 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy, mixed, frigid Lithic Haploxerolls

Typical pedon of Nuss stony loam in an area of Nuss-Merlin complex, 20 to 40 percent north slopes; about 800 feet north and 1,800 feet east of the southwest corner of sec. 9, T. 23 S., R. 35 E.; Coleman Mountain quadrangle.

A—0 to 4 inches; grayish brown (10YR 5/2) stony loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure and weak medium subangular blocky; soft, very friable, nonsticky and nonplastic; few very fine and fine roots; few very fine and fine vesicular pores; 10 percent gravel, 10 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.8); gradual smooth boundary.
Bw1—4 to 12 inches; dark grayish brown (10YR 4/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine irregular pores; 20 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.6); gradual smooth boundary.
Bw2—12 to 15 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine irregular and tubular pores; 5 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.
R—15 inches; fractured basalt.

The mollic epipedon is 7 to 16 inches thick. Thickness of the solum and depth to

bedrock are 10 to 20 inches. The particle-size control section averages 15 to 35 percent rock fragments, mainly gravel and cobbles, and 18 to 30 percent clay.

The A horizon has chroma of 2 or 3 moist or dry. It is neutral or slightly alkaline.

The Bw horizon has value of 4 or 5 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is gravelly loam, cobbly loam, gravelly clay loam, or cobbly clay loam. It is 15 to 35 percent rock fragments and 18 to 30 percent clay. It is neutral or slightly alkaline.

Observation Series

The Observation series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and welded tuff. The soils are on hills, plateaus, and mountains. Slope is 2 to 50 percent. Elevation is 4,200 to 6,000 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Typic Argixerolls

Typical pedon of Observation very stony loam in an area of Merlin-Observation complex, 20 to 40 percent north slopes; about 600 feet south and 2,500 feet west of the northeast corner of sec. 22, T. 23 S., R. 34 E.; Mahon Creek quadrangle.

A1—0 to 4 inches; dark grayish brown (10YR 4/2) very stony loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; soft, friable, slightly sticky and nonplastic; common very fine and few fine roots; common very fine vesicular pores; 5 percent gravel, 25 percent cobbles, and 20 percent stones; slightly alkaline (pH 7.8); gradual smooth boundary.

A2—4 to 8 inches; brown (10YR 4/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine roots; few fine vesicular and tubular pores; 5 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bt1—8 to 18 inches; dark yellowish brown (10YR 4/4) clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; few distinct clay films on faces of peds; 10 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

Bt2—18 to 23 inches; dark yellowish brown (10YR 4/4) clay, dark yellowish brown (10YR 3/4) moist; strong medium angular blocky structure; very hard, very firm, very sticky and very plastic; few fine roots; few fine tubular pores; common distinct clay films on faces of peds; 10 percent cobbles; slightly alkaline (pH 7.8); clear smooth boundary.

2R—23 inches; fractured basalt.

The mollic epipedon is 8 to 18 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 5 to 25 percent rock fragments, mainly gravel and cobbles, and 35 to 50 percent clay. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is very gravelly loam, stony loam, or very stony loam. It is 15 to 60 percent rock fragments and 18 to 27 percent clay.

The Bt horizon has hue of 7.5YR or 10YR, value of 4 to 6 dry and 3 to 5 moist, and chroma of 2 to 4 moist or dry. It is clay loam, clay, or cobbly clay loam. It is 5 to 25 percent rock fragments and 35 to 50 percent clay.

Olac Series

The Olac series consists of shallow, well drained soils that formed in residuum derived from basalt. The soils are on hills and plateaus. Slope is 2 to 10 percent. Elevation is 4,200 to 5,000 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids

Typical pedon of Olac very cobbly fine sandy loam in an area of Olac-Atlow complex, 2 to 10 percent slopes; about 500 feet south and 500 feet west of the northeast corner of sec. 25, T. 33 S., R. 36 E.; Ancient Lake Well quadrangle.

A—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly fine sandy loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and nonplastic; few very fine and fine roots; many very fine, fine, medium, and coarse vesicular pores; 25 percent gravel, 15 percent cobbles, and 5 percent stones; moderately alkaline (pH 8.0); clear wavy boundary.

Bt1—4 to 10 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 4/3) moist; moderate medium subangular blocky structure; slightly hard, friable, very sticky and moderately plastic; few fine and common very fine roots; common very fine and fine irregular pores; few faint clay films on faces of peds and lining pores; 15 percent gravel and 35 percent cobbles; moderately alkaline (pH 8.0); gradual irregular boundary.

Bt2—10 to 13 inches; light yellowish brown (10YR 6/4) extremely cobbly clay loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, friable, moderately sticky and moderately plastic; few fine and common very fine roots; few very fine irregular pores; few faint clay films on rock fragments; 10 percent gravel and 55 percent cobbles; moderately alkaline (pH 8.0); gradual broken boundary.

R—13 inches; highly fractured basalt.

Thickness of the solum and depth to bedrock are 10 to 14 inches. The particle-size control section averages 35 to 70 percent rock fragments, mainly cobbles, and 18 to 27 percent clay. The profile is slightly alkaline or moderately alkaline.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is 35 to 60 percent rock fragments and 10 to 20 percent clay.

The Bt horizon has value of 4 to 7 dry and 3 or 4 moist, and it has chroma of 2 to 4 moist or dry. It is extremely gravelly loam, very cobbly clay loam, or extremely cobbly clay loam. It is 50 to 70 percent rock fragments and 20 to 30 percent clay.

Opie Series

The Opie series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed (calcareous), frigid Cumulic Endoaquolls

Typical pedon of Opie silt loam, 0 to 1 percent slopes, about 3,000 feet west and 3,300 feet south of the northeast corner of sec. 14, T. 23 S., R. 31 E.; Poison Creek Slough quadrangle.

A1—0 to 7 inches; gray (10YR 5/1) silt loam, very dark gray (10YR 3/1) moist; weak thin platy structure in the upper 2 inches and moderate medium prismatic structure in the lower 5 inches; hard, firm, slightly sticky and slightly plastic; many

fine roots; many very fine tubular pores; slightly effervescent with disseminated carbonates; very strongly alkaline (pH 9.4); gradual smooth boundary.

A2—7 to 10 inches; gray (10YR 5/1) silty clay loam, black (10YR 2/1) moist; moderate fine prismatic structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; slightly effervescent with disseminated carbonates; very strongly alkaline (pH 9.4); clear wavy boundary.

A3—10 to 16 inches; gray (10YR 5/1) silt loam, black (10YR 2/1) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; strongly effervescent with disseminated carbonates; strongly alkaline (pH 9.0); clear smooth boundary.

A4—16 to 26 inches; dark gray (10YR 4/1) silty clay loam, black (10YR 2/1) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; strongly effervescent with disseminated carbonates; strongly alkaline (pH 9.0); clear wavy boundary.

Ak1—26 to 34 inches; gray (10YR 6/1) silt loam, very dark gray (10YR 3/1) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; strongly effervescent; many segregated filaments of carbonates; common fine distinct iron concentrations that are reddish brown (5YR 5/4) when moist; strongly alkaline (pH 9.0); abrupt wavy boundary.

Ak2—34 to 44 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many very fine tubular pores; strongly effervescent; many segregated filaments of carbonates; common fine distinct iron concentrations that are reddish brown (5YR 5/4) when moist; strongly alkaline (pH 9.0); abrupt wavy boundary.

2C—44 to 64 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few roots; common fine distinct iron concentrations that are reddish brown (5YR 5/4) when moist; 20 percent gravel; moderately alkaline (pH 8.2).

The mollic epipedon is 24 to 40 inches thick and is 1 to 4 percent organic matter. The particle-size control section is 18 to 35 percent clay and 0 to 5 percent rock fragments, mainly fine gravel. Depth to the gravelly substratum is 40 to 60 inches or more. Occasional ponding occurs in spring. A high water is present late in winter, in spring, and early in summer.

The A and Ak horizons have value of 2 or 3 moist and 4 to 6 dry, and they have chroma of 1 or 2 moist or dry. They are 24 to 60 inches thick. They are 18 to 35 percent clay. The horizons are calcareous and are strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 2 to 10, increasing as depth increases. Electrical conductivity is 8 to 30 millimhos per centimeter, decreasing as depth increases.

The 2C horizon has value of 4 moist and 6 or 7 dry, and it has chroma of 2 moist and 2 or 3 dry. It is gravelly loamy sand, gravelly sandy loam, or gravelly loam. It is 10 to 30 percent gravel. The sodium adsorption ratio is 0 to 5. Electrical conductivity is 2 to 4 millimhos per centimeter.

Oreanna Series

The Oreanna series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 0 to 3 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Haplocambids

Typical pedon of Oreanna gravelly sandy clay loam in an area of Davey-Oreanna complex, 0 to 8 percent slopes; about 1,200 feet south and 1,500 feet east of the northwest corner of sec. 3, T. 37 S., R. 34 E.; Borax Lake quadrangle.

A—0 to 7 inches; pale brown (10YR 6/3) gravelly sandy clay loam, dark brown (10YR 3/3) moist; moderate thin platy structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; many very fine and fine vesicular and irregular pores; 20 percent gravel; moderately alkaline (pH 8.2); clear smooth boundary.

Bw1—7 to 14 inches; pale brown (10YR 6/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, very friable, moderately sticky and slightly plastic; few very fine, fine, and medium roots; many very fine and fine irregular pores; 5 percent gravel; moderately alkaline (pH 8.0); clear smooth boundary.

Bw2—14 to 21 inches; pale brown (10YR 6/3) gravelly sandy clay loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine and fine irregular pores; 30 percent rounded gravel; 10 percent of horizon is brittle; moderately alkaline (pH 8.2); clear wavy boundary.

2C—21 to 43 inches; very pale brown (10YR 7/3) very gravelly loamy coarse sand, dark yellowish brown (10YR 4/4) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; many very fine and fine irregular pores; 55 percent rounded gravel; 5 percent of horizon is brittle; moderately alkaline (pH 8.4); gradual wavy boundary.

3Ck1—43 to 50 inches; very pale brown (10YR 7/3) very gravelly sandy loam, yellowish brown (10YR 5/4) moist; massive; slightly hard, very friable, slightly sticky and nonplastic; few very fine roots; many very fine and fine irregular pores; strongly effervescent with disseminated carbonates; 50 percent rounded gravel; strongly alkaline (pH 8.6); clear wavy boundary.

4Ck2—50 to 60 inches; white (2.5Y 8/2) loamy sand, very pale brown (10YR 7/3) moist; single grain; loose, nonsticky and nonplastic; many very fine irregular pores; strongly effervescent with disseminated carbonates; 5 percent gravel; 5 percent of horizon is brittle; strongly alkaline (pH 8.6).

Depth to the layer of sand and gravel (2C horizon) is 20 to 30 inches. Bedrock is at a depth of more than 60 inches. Calcium carbonate is at a depth of 30 to 50 inches. The upper part of the particle-size control section averages 5 to 30 percent rock fragments, mainly gravel, and 20 to 30 percent clay. The lower part averages 40 to 60 percent rock fragments, mainly gravel, and 0 to 10 percent clay.

The A horizon is 20 to 30 percent rock fragments and 20 to 30 percent clay.

The Bw horizon is clay loam, sandy clay loam, or gravelly sandy clay loam. It is 5 to 35 percent rock fragments and 20 to 30 percent clay.

The 2C horizon has hue of 2.5Y or 10YR. It is loamy sand, very gravelly loamy coarse sand, or very gravelly sandy loam. It is 5 to 60 percent rock fragments and 0 to 15 percent clay.

Oreneva Series

The Oreneva series consists of moderately deep, well drained soils that formed in residuum derived from welded tuff and basalt. The soils are on hills and plateaus. Slope is 0 to 12 percent. Elevation is 4,200 to 6,200 feet. The mean annual

precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Xeric Haplocambids

Typical pedon of Oreneva gravelly loam in an area of Anawalt-Oreneva complex, 0 to 12 percent slopes, about 1,000 feet north and 2,500 feet west of the southeast corner of sec. 20, T. 41 S., R. 30 E.; Thousand Creek Spring quadrangle.

A—0 to 2 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate coarse subangular blocky; slightly hard, friable, slightly sticky and slightly plastic; common fine and medium and few coarse roots; many very fine and fine irregular pores; 20 percent gravel; neutral (pH 6.8); clear smooth boundary.

Bw1—2 to 10 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, firm, moderately sticky and slightly plastic; common fine and medium roots; common very fine irregular pores; 5 percent gravel; neutral (pH 7.2); clear smooth boundary.

Bw2—10 to 21 inches; light yellowish brown (10YR 6/4) very gravelly loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; common fine and few medium roots; common very fine and fine irregular pores; 35 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.4); abrupt wavy boundary.

2R—21 inches; welded tuff.

Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly gravel, and 18 to 30 percent clay.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is 15 to 30 percent rock fragments and 18 to 27 percent clay.

The Bw1 horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is loam or clay loam. It is 0 to 15 percent rock fragments and 18 to 30 percent clay. It is neutral or slightly alkaline.

The Bw2 horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 3 or 4 moist or dry. It is very gravelly loam or very gravelly clay loam. It is 35 to 60 percent rock fragments and 18 to 30 percent clay. It is slightly alkaline or moderately alkaline.

Outerkirk Series

The Outerkirk series consists of very deep, well drained soils that formed in alluvium. The soils are on alluvial fans. Slope is 1 to 6 percent. Elevation is 3,900 to 4,600 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Durinodic Haplocalcids

Typical pedon of Outerkirk sandy loam in an area of Outerkirk-Defenbaugh association, 1 to 4 percent slopes; about 1,200 feet south and 500 feet east of the northwest corner of sec. 20, T. 38 S., R. 35 E.; Fields quadrangle.

A—0 to 6 inches; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; moderate thick platy structure; slightly hard, friable, nonsticky and nonplastic; common very fine and fine and few medium roots; many very fine and fine vesicular pores; slightly effervescent with disseminated carbonates; 1 percent

calcium carbonate equivalent; 5 percent gravel; moderately alkaline (pH 8.4); clear wavy boundary.

Bk1—6 to 23 inches; light gray (10YR 7/2) sandy loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; common very fine, fine, and medium roots; many very fine vesicular and irregular pores; strongly effervescent with disseminated carbonates; 4 percent calcium carbonate equivalent; strongly alkaline (pH 8.8); clear smooth boundary.

Bk2—23 to 29 inches; pale brown (10YR 6/3) gravelly sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; violently effervescent with disseminated carbonates; 5 percent calcium carbonate equivalent; 20 percent gravel; strongly alkaline (pH 8.8); clear smooth boundary.

Bkq—29 to 51 inches; very pale brown (10YR 7/3) loamy sand, dark yellowish brown (10YR 3/4) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; 40 percent durinodes; violently effervescent with disseminated carbonates; strongly alkaline (pH 8.6); clear smooth boundary.

2C—51 to 60 inches; brown (10YR 5/3) loamy sand, very dark grayish brown (10YR 3/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores; trace of calcium carbonate; 10 percent gravel; strongly alkaline (pH 8.6).

Depth to the Bkq horizon is 20 to 38 inches. Bedrock is at a depth of more than 60 inches. Calcium carbonate is at a depth of 0 to 5 inches. The particle-size control section averages 0 to 20 percent rock fragments, mainly gravel, and 5 to 15 percent clay.

The A horizon is 0 to 10 percent rock fragments and 5 to 20 percent clay. It has a calcium carbonate equivalent of 1 to 2 percent.

The Bk horizon is sandy loam and gravelly sandy loam. It is 0 to 20 percent rock fragments and 5 to 20 percent clay. It has a calcium carbonate equivalent of 4 to 6 percent. It is moderately alkaline or strongly alkaline.

The Bkq horizon is sandy loam or loamy sand. It is 0 to 15 percent rock fragments and 3 to 15 percent clay. It is 20 to 50 percent durinodes, and it has a continuous, hard, firm and brittle layer in some pedons. It has a calcium carbonate equivalent of 5 to 8 percent.

The 2C horizon is loamy sand, sandy loam, or silty clay loam. It is 0 to 15 percent rock fragments and 3 to 35 percent clay.

Ozamis Series

The Ozamis series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Fluvaquentic Endoaquolls

Typical pedon of Ozamis silt loam, 0 to 1 percent slopes, about 300 feet south and 4,200 feet west of the northeast corner of sec. 2, T. 37 S., R. 36 E.; Whitehorse Ranch quadrangle.

A1—0 to 5 inches; very dark grayish brown (10YR 3/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine granular structure; slightly hard, friable, nonsticky and nonplastic; common very fine, many fine, and few medium roots; many fine

and very fine irregular pores; 5 percent fine gravel; slightly alkaline (pH 7.8); clear smooth boundary.

A2—5 to 11 inches; dark gray (10YR 4/1) silt loam, black (10YR 2/1) moist; moderate fine and medium subangular blocky structure; hard, firm, slightly sticky and moderately plastic; few very fine and common fine roots; few fine tubular pores; 5 percent fine gravel; slightly alkaline (pH 7.6); clear smooth boundary.

AC—11 to 19 inches; grayish brown (2.5Y 5/2) clay loam, dark grayish brown (2.5Y 4/2) moist; moderate medium subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and common fine roots; few fine tubular pores; few fine distinct iron concentrations that are pale brown (10YR 6/3) when moist; 5 percent fine gravel; slightly alkaline (pH 7.6); clear wavy boundary.

Cg1—19 to 35 inches; light brownish gray (10YR 6/2) loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few very fine and common fine roots; few fine faint iron concentrations that are light yellowish brown (10YR 6/4) when moist; 10 percent fine gravel; slightly alkaline (pH 7.6); clear wavy boundary.

Cg2—35 to 50 inches; light brownish gray (2.5Y 6/2) clay loam, dark grayish brown (10YR 4/2) moist; massive; hard, friable, moderately sticky and moderately plastic; common fine distinct iron concentrations that are light yellowish brown (10YR 6/4) when moist; slightly alkaline (pH 7.6); clear wavy boundary.

2Cg3—50 to 60 inches; light brownish gray (2.5Y 6/2) sandy loam, dark grayish brown (2.5Y 4/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; common fine distinct iron concentrations that are light yellowish brown (10YR 6/4) when moist; slightly alkaline (pH 7.6).

Depth to bedrock is more than 60 inches. The particle-size control section averages 25 to 35 percent clay. Frequent ponding occurs in spring. A high water table is present in spring and early in summer. Depth to the 2Cg horizon is 30 to 50 inches.

The A horizon has value of 3 or 4 dry and 2 moist, and it has chroma of 1 or 2 moist or dry. It is slightly alkaline or moderately alkaline.

The AC and Cg horizons have value of 5 to 7 dry and 4 moist, and they have chroma of 1 or 2 moist or dry. They are clay loam, loam, or silty clay loam. They are neutral to moderately alkaline. They are 25 to 35 percent clay and 0 to 10 percent coarse fragments.

The 2Cg horizon has value of 5 to 7 dry and 4 moist, and it has chroma of 1 or 2 moist or dry. It is stratified sandy loam to silty clay loam with 10 to 30 percent clay. It is neutral to moderately alkaline.

Pearlwise Series

The Pearlwise series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and welded tuff. The soils are on hills and mountains. Slope is 3 to 65 percent. Elevation is 5,400 to 6,600 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Pachic Haploxerolls

Typical pedon of Pearlwise clay loam in an area of Carryback-Pearlwise complex, 3 to 15 percent slopes; about 2,500 feet south and 1,200 feet east of the northwest corner of sec. 27, T. 39 S., R. 34 E.; Ladycomb Peak quadrangle.

A1—0 to 6 inches; very dark grayish brown (10YR 3/2) clay loam, black (10YR 2/1) moist; moderate medium subangular blocky structure; slightly hard, very friable,

moderately sticky and moderately plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular and irregular pores; 5 percent gravel; neutral (pH 7.0); gradual wavy boundary.

A2—6 to 22 inches; very dark grayish brown (10YR 3/2) clay loam, black (10YR 2/1) moist; weak medium subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; many very fine, fine, and medium roots; many very fine, fine, and medium tubular and irregular pores; 5 percent gravel; neutral (pH 7.0); abrupt wavy boundary.

R—22 inches; basalt.

The mollic epipedon is 20 to 30 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 0 to 25 percent rock fragments, mainly gravel, and 20 to 35 percent clay. The profile is slightly acid or neutral.

The upper part of the A horizon has value of 3 or 4 dry and 2 or 3 moist, and it has chroma of 1 to 3 moist or dry. It is clay loam or stony loam. It is 0 to 35 percent rock fragments and 20 to 30 percent clay. The lower part of the A horizon has value of 3 to 5 dry and 2 or 3 moist, and it has chroma of 1 to 3 moist or dry. It is clay loam, loam, or gravelly clay loam. It is 0 to 25 percent rock fragments and 20 to 35 percent clay.

Pernty Series

The Pernty series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt and rhyolite. The soils are on hills and mountains. Slope is 3 to 70 percent. Elevation is 4,000 to 7,000 feet. The mean annual precipitation is 10 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Lithic Argixerolls

Typical pedon of Pernty gravelly silt loam, 15 to 40 percent slopes, about 700 feet south and 700 feet west of the northeast corner of sec. 32, T. 25 S., R. 24 E.; Wagontire Mountain East quadrangle.

A—0 to 3 inches; grayish brown (10YR 5/2) gravelly silt loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; 30 percent gravel; slightly alkaline (pH 7.4); clear smooth boundary.

BA—3 to 8 inches; grayish brown (10YR 5/2) cobbly loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; 15 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt—8 to 15 inches; brown (10YR 5/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate medium and fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; few faint discontinuous clay films on faces of peds; 10 percent gravel and 40 percent cobbles; slightly alkaline (pH 7.4); abrupt irregular boundary.

R—15 inches; rhyolite.

Thickness of the mollic epipedon and the solum and depth to bedrock are 14 to 20 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly cobbles, and 25 to 35 percent clay. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is cobbly loam or gravelly silt loam. It is 15 to 30 percent rock fragments and 15 to 25 percent clay.

The Bt horizon is very cobbly loam or very cobbly clay loam. It is 35 to 50 percent rock fragments and 25 to 35 percent clay.

Poall Series

The Poall series consists of very deep, well drained soils that formed in residuum and colluvium derived from tuffaceous sedimentary rock and diatomaceous earth. The soils are on hills. Slope is 2 to 20 percent. Elevation is 3,400 to 4,200 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Xeric Paleargids

Typical pedon of Poall silt loam in an area of Poall-Gumble complex, 2 to 20 percent slopes; about 1,900 feet south and 1,800 feet west of the northeast corner of sec. 23, T. 21 S., R. 35 E.; Bartlett Mountain quadrangle.

A—0 to 8 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; strong medium platy structure parting to weak thin platy; slightly hard, friable, moderately sticky and moderately plastic; common very fine and few fine roots; common very fine and fine and few medium vesicular pores; 5 percent gravel; slightly alkaline (pH 7.5); abrupt smooth boundary.

2Bt1—8 to 17 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 3/4) moist; strong fine prismatic structure parting to strong medium angular blocky; very hard, very firm, very sticky and very plastic; common very fine and fine roots; few very fine, fine, and medium tubular pores; few prominent and common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.8); gradual smooth boundary.

2Bt2—17 to 33 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium angular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine, fine, and medium tubular pores; common distinct clay films on faces of peds and lining pores; slightly alkaline (pH 7.8); clear smooth boundary.

3Btk—33 to 45 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; moderate medium angular blocky structure parting to weak fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine roots; few very fine, fine, and medium tubular pores; common faint clay films on faces of peds; slightly effervescent with disseminated carbonates; moderately alkaline (pH 8.0); clear smooth boundary.

3Bk—45 to 65 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm, moderately sticky and moderately plastic; few very fine irregular pores; 30 percent gravel; strongly effervescent with disseminated carbonates; moderately alkaline (pH 8.2).

Thickness of the solum and depth to bedrock are more than 60 inches. Calcium carbonate is at a depth of 15 to 35 inches. The particle-size control section averages 0 to 15 percent rock fragments, mainly gravel, and 35 to 50 percent clay. The content of clay in the 2Bt horizon is 20 to 30 percent more than that of the A horizon. Depth to the 2Bt horizon is 3 to 10 inches.

The A horizon has hue of 2.5Y or 10YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 to 4 dry and 3 or 4 moist. It is 0 to 15 percent rock fragments and 18 to 27 percent clay. It is slightly alkaline or moderately alkaline.

The 2Bt horizon has value of 5 or 6 dry and 3 to 5 moist, and it has chroma of 3 or 4 moist or dry. It is clay loam, gravelly clay loam, clay, or gravelly silty clay loam. It is

0 to 20 percent rock fragments. The upper part is 40 to 50 percent clay, and the lower part ranges to 35 percent clay. The horizon is slightly alkaline or moderately alkaline.

The 3Bk horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 3 or 4 moist or dry. It is clay loam, silty clay loam, or gravelly clay loam. It is 0 to 30 percent rock fragments and 27 to 40 percent clay. It is moderately alkaline or strongly alkaline.

Pomerening Series

The Pomerening series consists of very deep, excessively drained soils that formed in cinders and ash. The soils are on hills. Slope is 2 to 20 percent. Elevation is 4,100 to 4,700 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy, nonacid, frigid Vitrandic Torriorthents

Typical pedon of Pomerening very gravelly loamy sand, 2 to 20 percent slopes, about 100 feet north and 2,550 feet east of the southwest corner of sec. 29, T. 28 S., R. 32 E.; Diamond Swamp quadrangle.

A1—0 to 4 inches; reddish gray (5YR 5/2) very gravelly loamy sand, dark reddish brown (5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; common very fine and fine and few medium and coarse irregular pores; 35 percent gravel-sized cinders; slightly alkaline (pH 7.4); clear smooth boundary.

A2—4 to 9 inches; reddish brown (5YR 5/3) very gravelly loamy coarse sand, dark reddish brown (5YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine, fine, and medium and few coarse irregular pores; 30 percent gravel-sized cinders and 5 percent cobble-sized cinders; slightly alkaline (pH 7.5); clear smooth boundary.

C1—9 to 34 inches; weak red (2.5YR 5/2) gravelly loamy coarse sand, dusky red (2.5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few very fine and fine roots; common very fine, fine, medium, and coarse irregular pores; 20 percent gravel-sized cinders; slightly alkaline (pH 7.5); diffuse wavy boundary.

C2—34 to 62 inches; weak red (2.5YR 5/2) gravelly loamy coarse sand, dusky red (2.5YR 3/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; common very fine, fine, and medium and few coarse irregular pores; 20 percent gravel-sized cinders and 5 percent cobble-sized cinders; slightly alkaline (pH 7.5).

The mollic colors throughout the profile are due to the parent material. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 25 to 35 percent gravel-sized cinders and 2 to 10 percent clay. Where present, carbonates are below a depth of 20 inches.

The A horizon has hue of 5YR, 7.5YR, or 10YR. It is very gravelly loamy sand or very gravelly sandy loam. It is 35 to 60 percent cinders and 5 to 15 percent clay.

The C horizon has hue of 2.5YR, 5YR, or 7.5YR. It is gravelly loamy coarse sand, gravelly loamy sand, or very gravelly loamy coarse sand. It is 20 to 45 percent cinders and 2 to 10 percent clay. It is slightly alkaline or moderately alkaline.

Porterfield Series

The Porterfield series consists of shallow, well drained soils that formed in residuum and colluvium derived from diatomaceous earth and tuffaceous sedimentary rock. The soils are on hills. Slope is 2 to 60 percent. Elevation is 3,400 to 4,600 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, nonacid, mesic, shallow Xeric Torriorthents

Typical pedon of Porterfield very stony loam in an area of Porterfield-Tincan-Rock outcrop association, 20 to 60 percent slopes; about 1,700 feet south and 400 feet west of the northeast corner of sec. 11, T. 21 S., R. 35 E.; Drewsey quadrangle.

A—0 to 6 inches; light brownish gray (10YR 6/2) very stony loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; many very fine and fine and common medium roots; many very fine and fine and common medium vesicular pores; 15 percent gravel, 10 percent cobbles, and 15 percent stones; neutral (pH 6.7); clear smooth boundary.

C—6 to 14 inches; pale brown (10YR 6/3) loam, dark brown (10YR 3/3) moist; massive; soft, friable, slightly sticky and slightly plastic; few very fine and fine roots; few very fine vesicular pores; 5 percent gravel and 5 percent cobbles; neutral (pH 6.9); clear smooth boundary.

Cr—14 inches; diatomaceous earth.

Depth to bedrock is 14 to 20 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel, and 18 to 35 percent clay. The profile is neutral or slightly alkaline.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 moist or dry. It is loam or very stony loam. It is 5 to 60 percent rock fragments and 18 to 27 percent clay.

The C horizon has hue of 10YR or 7.5YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry. It is loam or gravelly silty clay loam. It is 5 to 30 percent rock fragments and 18 to 30 percent clay.

Poujade Series

The Poujade series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 5 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Durinodic Xeric Natrargids

Typical pedon of Poujade very fine sandy loam, 2 to 5 percent slopes, about 300 feet north and 600 feet east of the southwest corner of sec. 23, T. 24 S., R. 33 E.; Warm Springs Butte quadrangle.

A1—0 to 4 inches; light brownish gray (10YR 6/2) very fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, nonsticky and nonplastic; many very fine roots; many very fine vesicular pores; neutral (pH 7.0); clear smooth boundary.

2A2—4 to 6 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; moderate very thin platy structure; soft, very friable, nonsticky and nonplastic; common fine roots; many very fine tubular pores; moderately alkaline (pH 8.0); clear smooth boundary.

2Btn1—6 to 9 inches; light brownish gray (10YR 6/2) silty clay loam, dark brown (10YR 3/3) moist; moderate very fine prismatic structure parting to strong fine angular blocky; very hard, friable, moderately sticky and moderately plastic; common fine and medium roots; few fine tubular pores; many prominent clay films lining pores and on faces of peds; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 13; very strongly alkaline (pH 9.5); clear wavy boundary.

2Btn2—9 to 13 inches; light yellowish brown (10YR 6/4) silty clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; hard, friable, moderately sticky and slightly plastic; few fine roots; few very fine tubular pores; common distinct clay films lining pores and on faces of peds; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 48; very strongly alkaline (pH 10.0); gradual wavy boundary.
3Bqn1—13 to 25 inches; light gray (10YR 7/2) loam, dark yellowish brown (10YR 4/4) moist; massive; hard, firm and brittle, slightly sticky and nonplastic; few very fine roots; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 95; very strongly alkaline (pH 10.0); gradual wavy boundary.
3Bqn2—25 to 40 inches; light gray (10YR 7/2) loam, brown (10YR 5/3) moist; massive; slightly hard, firm and brittle, nonsticky and nonplastic; few medium roots; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 167; very strongly alkaline (pH 10.0); clear smooth boundary.
4Bn—40 to 46 inches; white (10YR 8/2) silty clay loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky and slightly plastic; few medium roots; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 10.0); gradual smooth boundary.
4C1—46 to 58 inches; white (10YR 8/2) loam, brown (10YR 5/3) moist; massive; hard, friable, slightly sticky and nonplastic; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.8); clear smooth boundary.
4C2—58 to 65 inches; light gray (10YR 7/2) fine sandy loam, grayish brown (10YR 5/2) moist; massive; slightly hard, very friable, nonsticky and nonplastic; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.8).

The argillic horizon is 5 to 12 inches thick. The solum is 30 to 50 inches thick. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 0 to 5 percent gravel and 27 to 35 percent clay. A high water table is present in spring. Depth to the hard, brittle layer is 10 to 20 inches. Depth to the natric horizon is 4 to 8 inches.

The A horizon has hue of 10YR, value of 5 to 7 dry and 3 or 4 moist, and chroma of 2 or 3 dry or moist. It is 5 to 10 percent clay. It is neutral or slightly alkaline.

The 2Btn horizon has hue of 10YR or 2.5Y, value of 5 or 6 dry and 3 or 4 moist, and chroma of 3 or 4 dry or moist. It is silty clay loam or clay loam. It is 0 to 10 percent rock fragments and 27 to 35 percent clay. The sodium adsorption ratio is 13 to 50.

The 3Bqn horizon has hue of 10YR or 2.5Y, value of 6 or 7 dry and 4 or 5 moist, and chroma 2 to 4 dry or moist. It is clay loam or loam with 20 to 30 percent clay. The sodium adsorption ratio is 50 to 170.

The 4B and 4C horizons have hue of 10YR or 2.5Y, value of 6 to 8 dry and 4 or 5 moist, and chroma of 2 to 4 dry or moist. They are stratified silty clay loam, loam, and fine sandy loam with 10 to 30 percent clay. The sodium adsorption ratio is 30 to 170, decreasing as depth increases. The horizons are strongly alkaline or very strongly alkaline, decreasing as depth increases.

Raz Series

The Raz series consists of soils that are shallow to a duripan and are well drained. The soils formed in colluvium and alluvium over basalt and welded tuff. They are on plateaus and hills. Slope is 1 to 20 percent. Elevation is 4,100 to 6,000 feet. The mean annual precipitation is 8 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy, mixed, frigid, shallow Xeric Haplodurids

Typical pedon of Raz very cobbly loam in an area of Raz-Brace complex, 2 to 20 percent slopes; about 500 feet north and 2,500 feet west of the southeast corner of sec. 15, T. 38 S., R. 32 E.; Square Mountain quadrangle.

A—0 to 2 inches; pale brown (10YR 6/3) very cobbly loam, dark brown (10YR 3/3) moist; moderate very thick platy structure; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; many fine vesicular pores and few fine tubular pores; 15 percent gravel and 20 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bk—2 to 7 inches; light gray (10YR 7/2) gravelly clay loam, brown (10YR 4/3) moist; weak thick platy structure; slightly hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; many very fine vesicular pores and few very fine tubular pores; slightly effervescent with carbonates segregated in few soft masses; 10 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.8); clear wavy boundary.

Bkq—7 to 12 inches; light gray (10YR 7/2) clay loam, yellowish brown (10YR 5/4) moist; massive; hard, firm, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; strongly effervescent with disseminated carbonates; 5 percent gravel; horizon is discontinuously brittle; moderately alkaline (pH 8.2); clear wavy boundary.

Bkqm—12 to 23 inches; indurated duripan; violently effervescent with coatings of carbonates on duripan; opal pendants on duripan; abrupt smooth boundary.

2R—23 inches; basalt.

Thickness of the solum and depth to the duripan are 10 to 18 inches. Depth to bedrock is 20 to 40 inches. Depth to carbonates is 2 to 14 inches. The particle-size control section averages 10 to 25 percent rock fragments, mainly gravel, and 20 to 35 percent clay.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is very cobbly loam or cobbly fine sandy loam. It is 15 to 60 percent rock fragments.

The Bk and Bkq horizons have value of 6 or 7 dry and 4 to 6 moist, and they have chroma of 3 to 6 moist and 2 to 6 dry. They are clay loam, loam, gravelly clay loam, gravelly loam, or cobbly clay loam. They are 5 to 25 percent cobbles and gravel.

The Bkqm horizon is 3 to 18 inches thick.

Reallis Series

The Reallis series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 0 to 8 percent. Elevation is 4,000 to 5,800 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Coarse-loamy, mixed, frigid Durinodic Xeric Haplocambids

Typical pedon of Reallis sandy loam, 3 to 8 percent slopes, about 2,100 feet north and 2,600 feet west of the southeast corner of sec. 36, T. 25 S., R. 30 E.; Northeast Harney Lake quadrangle.

A—0 to 1 inch; light brownish gray (10YR 6/2) sandy loam, dark brown (10YR 3/3) moist; weak medium platy structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; many very fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.

Bw—1 to 9 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown

(10YR 4/2) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common very fine and fine roots; common very fine tubular pores; slightly alkaline (pH 7.6); gradual smooth boundary.

Bq—9 to 17 inches; light brownish gray (10YR 6/2) sandy loam, dark grayish brown (10YR 4/2) moist; weak medium and coarse subangular blocky structure; soft, very friable, nonsticky and nonplastic; common fine and very fine roots; common very fine tubular pores; 10 percent durinodes; slightly alkaline (pH 7.6); clear smooth boundary.

Bkq1—17 to 27 inches; light gray (10YR 7/2) sandy loam, grayish brown (10YR 5/2) moist; massive; hard, firm and brittle, nonsticky and nonplastic; common very fine roots; common very fine tubular pores; strongly effervescent; slightly alkaline (pH 7.8); clear smooth boundary.

Bkq2—27 to 36 inches; light gray (10YR 7/2) loamy sand, grayish brown (2.5Y 5/2) moist; massive; slightly hard, friable, nonsticky and nonplastic; few very fine roots; many very fine and fine irregular pores; 10 percent gravel; strongly effervescent; secondary carbonates segregated in soft masses; 5 percent durinodes; moderately alkaline (pH 8.0); gradual smooth boundary.

C—36 to 60 inches; multicolored loamy sand, dark grayish brown (2.5Y 4/2) moist; single grain; loose, nonsticky and nonplastic; many very fine and fine interstitial pores; slightly effervescent; moderately alkaline (pH 8.2).

Depth to the hard, firm and brittle layer and identifiable secondary carbonates is 17 to 35 inches. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 5 to 15 percent clay and 0 to 10 percent rock fragments, mainly gravel.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 dry or moist. It is sandy loam or fine sandy loam. It is 1 to 2 percent organic matter.

The Bw and Bq horizons have value of 5 to 7 dry and 3 or 4 moist, and they have chroma of 2 to 4 dry or moist. The Bq horizon is 5 to 20 percent durinodes.

The Bkq1 horizon has value of 5 to 7 dry and 4 or 5 moist, and it has chroma of 2 to 4 dry or moist. It is 0 to 10 percent gravel. The calcium carbonate equivalent is 1 to 2 percent.

The Bkq2 horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 4 or 5 moist, and chroma of 2 to 4 dry or moist. It is gravelly sandy loam, gravelly loamy sand, or loamy sand. It is 10 to 25 percent gravel and 5 to 50 percent durinodes. The calcium carbonate equivalent is 1 to 5 percent.

The C horizon has hue of 10YR or 2.5Y, value of 2 to 7 dry and 2 to 5 moist, and chroma of 1 to 4 dry or moist. It is gravelly sandy loam, gravelly loamy sand, or loamy sand. It is 0 to 25 percent gravel.

Reese Series

The Reese series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation is 4,400 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed (calcareous), mesic Aeric Halaquepts

Typical pedon of Reese loam in Lake County, Oregon; about 1,300 feet north and 1,250 feet west of the southeast corner of sec. 8, T. 35 S., R. 25 E.; Campbell Lake quadrangle.

An1—0 to 4 inches; dark brown (10YR 3/3) loam, light brownish gray (10YR 6/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; slightly effervescent

with disseminated carbonates; very strongly alkaline (pH 9.2); abrupt smooth boundary.

2An2—4 to 10 inches; brown (10YR 4/3) loam, light brownish gray (10YR 6/2) dry; moderate thin platy structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and nonplastic; many very fine, fine, medium, and coarse roots; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); clear smooth boundary.

2Bn—10 to 20 inches; brown (10YR 5/3) clay loam, light gray (10YR 7/2) dry; moderate medium platy structure parting to moderate medium granular; slightly hard, firm, slightly sticky and nonplastic; many very fine and fine roots; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); clear wavy boundary.

2Bqn—20 to 33 inches; brown (10YR 5/3) loam, light gray (10YR 7/2) dry; massive; slightly hard, firm, nonsticky and nonplastic; few very fine and fine roots; 15 percent medium and coarse cylindrical very firm durinodes; violently effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); abrupt wavy boundary.

3Bq1—33 to 44 inches; light brownish gray (10YR 6/2) coarse sandy loam, white (10YR 8/1) dry; massive; slightly hard, very firm, nonsticky and nonplastic; few very fine and fine roots; 40 percent medium and coarse cylindrical very firm durinodes; violently effervescent with disseminated carbonates; strongly alkaline (pH 8.8); clear wavy boundary.

4Bq2—44 to 60 inches; light brownish gray (10YR 6/2) loam, white (10YR 8/1) dry; massive; slightly hard, firm, nonsticky and nonplastic; 15 percent medium and coarse cylindrical very firm durinodes; violently effervescent with disseminated carbonates; strongly alkaline (pH 8.8).

Bedrock is at a depth of more than 60 inches. Frequent ponding occurs in winter and spring. A high water table is present in winter and spring. The particle-size control section averages 0 to 5 percent rock fragments, mainly gravel, and 18 to 30 percent clay. The profile has hue of 10YR or 2.5Y.

The A horizon has value of 3 or 4 moist and 6 or 7 dry, and it has chroma of 2 to 4 moist or dry. It is 20 to 27 percent clay. The sodium adsorption ratio is 100 to 200. Electrical conductivity is 16 to 32 millimhos per centimeter. The calcium carbonate equivalent is 5 to 15 percent.

The 2B horizon is loam and clay loam. It is 0 to 5 percent rock fragments and 20 to 30 percent clay. The sodium adsorption ratio is 30 to 140. Electrical conductivity is 2 to 16 millimhos per centimeter. The calcium carbonate equivalent is 15 to 30 percent.

The 3B and 4B horizons are loam, coarse sandy loam, or sandy loam. They are 0 to 5 percent rock fragments and 10 to 27 percent clay. The sodium adsorption ratio is 5 to 30. Electrical conductivity is 0 to 2 millimhos per centimeter. The calcium carbonate equivalent is 15 to 30 percent. The horizons are strongly alkaline or very strongly alkaline.

Reluctan Series

The Reluctan series consists of moderately deep, well drained soils that formed in residuum derived from basalt and welded tuff. The soils are on hills and plateaus. Slope is 0 to 30 percent. Elevation is 4,000 to 5,600 feet. The mean annual precipitation is 11 to 13 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Aridic Argixerolls

Typical pedon of Reluctan cobbly loam in an area of Ninemile-Reluctan complex,

0 to 15 percent slopes; about 2,000 feet south and 1,200 feet east of the northwest corner of sec. 23, T. 24 S., R. 28 E.; Palomino Buttes quadrangle.

A1—0 to 2 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to weak fine granular; soft, very friable, nonsticky and nonplastic; many very fine, common fine, and few medium roots; common very fine and fine vesicular pores; 10 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.6); abrupt smooth boundary.
A2—2 to 9 inches; brown (10YR 5/3) sandy loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to weak fine granular; soft, very friable, slightly sticky and nonplastic; many very fine, common fine, and few medium roots; few very fine and fine irregular pores; 10 percent gravel; slightly alkaline (pH 7.8); clear smooth boundary.
Bt1—9 to 15 inches; brown (10YR 5/3) sandy clay loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium irregular pores; few faint clay films on faces of peds; 5 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0); gradual smooth boundary.
Bt2—15 to 26 inches; light brownish gray (10YR 6/2) sandy clay loam, dark grayish brown (10YR 4/2) moist; moderate coarse subangular blocky structure parting to weak fine angular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few fine and medium irregular pores; common distinct clay films on faces of peds; 5 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt smooth boundary.
2R—26 inches; basalt.

The mollic epipedon is 7 to 15 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 0 to 30 percent rock fragments, mainly gravel, and 25 to 35 percent clay. A thin 2Cr horizon is above the lithic contact in some pedons.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is neutral or slightly alkaline. The upper part is loam, cobbly loam, or very stony silt loam. It is 0 to 60 percent rock fragments and 10 to 25 percent clay. The lower part is sandy loam, loam, or cobbly loam. It is 0 to 30 percent rock fragments and 15 to 25 percent clay.

The Bt horizon has hue of 7.5YR or 10YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry. It is sandy clay loam, clay loam, or cobbly clay loam. It is 5 to 30 percent rock fragments and 25 to 35 percent clay. It is slightly alkaline or moderately alkaline.

Riddleranch Series

The Riddleranch series consists of moderately deep, well drained soils that formed in colluvium derived from basalt and welded tuff. The soils are on mountains. Slope is 20 to 70 percent. Elevation is 4,200 to 6,300 feet. The mean annual precipitation is 11 to 13 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Aridic Haploxerolls

Typical pedon of Riddleranch very stony loam in an area of Riddleranch-Rock outcrop complex, 20 to 70 percent south slopes; about 1,400 feet south and 1,000 feet east of the northwest corner of sec. 4, T. 23 S., R. 25 E.; Suntex quadrangle.

A—0 to 7 inches; brown (10YR 5/3) very stony loam, very dark grayish brown (10YR 3/2) moist; weak medium granular structure; soft, very friable, slightly sticky and

slightly plastic; few very fine and fine roots; many very fine irregular and tubular pores; 20 percent gravel, 10 percent cobbles, and 25 percent stones; neutral (pH 6.7); clear wavy boundary.

BA—7 to 16 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, medium, and coarse roots; many very fine and fine irregular and tubular pores; 25 percent gravel, 20 percent cobbles, and 5 percent stones; neutral (pH 6.8); clear wavy boundary.

Bw—16 to 27 inches; brown (10YR 5/3) extremely stony loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and fine roots; many very fine irregular and tubular pores; 10 percent gravel, 20 percent cobbles, and 40 percent stones; neutral (pH 7.2); abrupt irregular boundary.

R—27 inches; basalt.

The mollic epipedon is 7 to 20 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 50 to 70 percent rock fragments and 18 to 35 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is very stony sandy loam or very stony loam. It is 35 to 60 percent rock fragments and 15 to 27 percent clay.

The BA and Bw horizons have value of 4 to 7 dry and 2 to 5 moist, and they have chroma of 2 to 4 moist or dry. They are very cobbly loam, very cobbly clay loam, or very stony loam over extremely stony loam or extremely stony clay loam. They are 50 to 80 percent rock fragments and 18 to 35 percent clay. They are neutral or slightly alkaline.

Rinconflat Series

The Rinconflat series consists of very deep, well drained soils that formed in alluvium derived from mixed igneous rock. The soils are on alluvial fans. Slope is 3 to 10 percent. Elevation is 4,600 to 5,700 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Xeric Haplocambids

Typical pedon of Rinconflat stony loam, 3 to 10 percent slopes, about 2,000 feet south and 2,000 feet east of the northwest corner of sec. 25, T. 39 S., R. 33 E.; Rincon Flat quadrangle.

A—0 to 4 inches; pale brown (10YR 6/3) stony loam, dark brown (10YR 3/3) moist; moderate thick platy structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine roots; many fine irregular pores; 15 percent gravel, 5 percent cobbles, and 10 percent stones; neutral (pH 6.9); clear wavy boundary.

Bw1—4 to 13 inches; yellowish brown (10YR 5/4) gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine and common fine roots; many fine and medium irregular pores; 20 percent gravel; neutral (pH 7.2); clear wavy boundary.

Bw2—13 to 23 inches; yellowish brown (10YR 5/4) very cobbly loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine and few very fine and medium roots; many very fine and fine irregular pores; 20 percent gravel and 20 percent cobbles; neutral (pH 7.2); gradual wavy boundary.

Bw3—23 to 29 inches; yellowish brown (10YR 5/4) very gravelly loam, dark yellowish brown (10YR 3/4) moist; weak medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; many very fine and fine irregular pores; 35 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.7); clear wavy boundary.
2C1—29 to 57 inches; pale brown (10YR 6/3) cobbly sandy loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; few fine roots; few fine irregular pores; 15 percent gravel and 10 percent cobbles; slightly effervescent with disseminated carbonates; strongly alkaline (pH 8.8); clear wavy boundary.
2C2—57 to 61 inches; yellowish brown (10YR 5/4) very cobbly sandy clay loam, dark brown (7.5YR 3/4) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine irregular pores; 20 percent gravel and 25 percent cobbles; slightly effervescent with disseminated carbonates; strongly alkaline (pH 8.5).

Thickness of the solum and depth to carbonates are 20 to 40 inches. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly gravel and cobbles, and 18 to 27 percent clay.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 moist or dry. It is 15 to 35 percent rock fragments and 15 to 27 percent clay.

The Bw horizon has hue of 7.5YR or 10YR and value of 5 or 6 dry and 3 or 4 moist. It is gravelly loam, very gravelly loam, or very cobbly loam. It is 25 to 60 percent rock fragments and 18 to 27 percent clay. It is neutral or slightly alkaline.

The C horizon has hue of 7.5YR or 10YR and value of 3 or 4 moist. It is very gravelly sandy loam, cobbly sandy loam, or very cobbly sandy clay loam. It is 25 to 60 percent rock fragments and 10 to 27 percent clay. It is moderately alkaline or strongly alkaline.

Rio King Series

The Rio King series consists of very deep, moderately well drained soils that formed in alluvium. The soils are on stream terraces. Slope is 1 to 6 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 7 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Aridic Haploxerolls

Typical pedon of Rio King loam, 1 to 6 percent slopes; about 600 feet north and 2,200 feet west of the southeast corner of sec. 22, T. 39 S., R. 35 E.; Tumtum Lake quadrangle.

A1—0 to 4 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak thin and medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; 5 percent fine gravel; moderately alkaline (pH 8.0); clear smooth boundary.
A2—4 to 17 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; 5 percent fine gravel; slightly alkaline (pH 7.8); gradual smooth boundary.
Bw—17 to 27 inches; brown (10YR 5/3) sandy loam, brown (10YR 4/3) moist; weak fine and medium subangular blocky structure; slightly hard, very friable, slightly sticky and nonplastic; many fine roots; common very fine tubular pores; 5 percent fine gravel; slightly effervescent; slightly alkaline (pH 7.8); gradual smooth boundary.
C1—27 to 45 inches; yellowish brown (10YR 5/4) very fine sandy loam, dark yellowish brown (10YR 3/4) moist; massive; slightly hard, very friable, slightly

sticky and slightly plastic; few very fine roots; many very fine tubular pores; 5 percent fine gravel; slightly alkaline (pH 7.8); gradual wavy boundary.

C2—45 to 64 inches; yellowish brown (10YR 5/4) sandy loam, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; moderately alkaline (pH 8.0).

The mollic epipedon is 10 to 20 inches thick. Bedrock is at a depth of more than 60 inches. A high water table is present in spring. The particle-size control section averages 0 to 5 percent rock fragments, mainly fine gravel, and 5 to 10 percent clay. The profile is slightly alkaline or moderately alkaline.

The A horizon has value of 4 or 5 dry and chroma of 2 or 3 dry or moist. It is 0 to 5 percent rock fragments.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is sandy loam or loam.

The C horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry and 2 to 4 moist.

Risley Series

The Risley series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from diatomaceous earth and tuffaceous sedimentary rock. The soils are on hills. Slope is 2 to 25 percent. Elevation is 3,500 to 4,500 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Xeric Haplargids

Typical pedon of Risley gravelly loam in an area of Risley-Gumble complex, 2 to 20 percent slopes; about 2,300 feet north and 1,000 feet west of the southeast corner of sec. 3, T. 21 S., R. 35 E.; Drewsey quadrangle.

A—0 to 3 inches; light brownish gray (10YR 6/2) gravelly loam, dark grayish brown (10YR 4/2) moist; moderate very thin platy structure; soft, very friable, slightly sticky and moderately plastic; common very fine roots; many very fine interstitial pores; 20 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

2Bt1—3 to 12 inches; grayish brown (2.5Y 5/2) clay, dark grayish brown (2.5Y 4/2) moist; strong medium prismatic structure parting to strong coarse angular blocky; extremely hard, very firm, very sticky and very plastic; few very fine and fine roots; few very fine tubular pores; many prominent clay films on faces of peds and lining pores; 10 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

2Bt2—12 to 25 inches; light olive brown (2.5Y 5/4) gravelly clay, olive brown (2.5Y 4/3) moist; strong medium prismatic structure parting to strong medium angular blocky; extremely hard, very firm, moderately sticky and very plastic; few very fine roots; few very fine tubular pores; many prominent clay films on faces of peds and lining pores; 15 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

2Bk—25 to 37 inches; light yellowish brown (2.5Y 6/4) gravelly clay loam, dark grayish brown (2.5Y 4/2) moist; weak very fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine roots; violently effervescent with disseminated carbonates and common fine irregular filaments of carbonates; 20 percent gravel; moderately alkaline (pH 8.0); clear wavy boundary.

2Ck—37 to 39 inches; pale yellow (2.5Y 7/4) very gravelly sandy clay loam, light olive brown (2.5Y 5/4) moist; massive; hard, friable, moderately sticky and moderately plastic; slightly effervescent with disseminated carbonates; 50 percent gravel; moderately alkaline (pH 8.0); abrupt wavy boundary.

3Cr—39 inches; weathered tuffaceous sedimentary rock.

Depth to bedrock is 20 to 40 inches. Depth to carbonates is 16 to 30 inches. Depth to the claypan is 1 to 11 inches. The particle-size control section averages 0 to 20 percent rock fragments, mainly gravel, and 35 to 55 percent clay. The 2Bk and 2Ck horizons are absent in some pedons.

The A horizon has hue of 10YR or 2.5Y, value of 5 to 7 dry and 3 to 5 moist, and chroma of 2 to 4 moist or dry. It is silty clay loam, gravelly loam, very gravelly loam, or very stony loam. It is 10 to 50 percent rock fragments and 18 to 35 percent clay. It is neutral or slightly alkaline.

The 2Bt horizon has hue of 5Y or 10YR, value of 5 or 6 dry and 3 or 4 moist, and chroma of 2 to 4 moist or dry. It is clay, gravelly clay, or gravelly clay loam. It is 0 to 20 percent rock fragments and 35 to 55 percent clay. It is neutral or slightly alkaline.

The 2Bk and 2Ck horizons have hue of 5Y to 10YR, value of 5 to 7 dry and 3 to 5 moist, and chroma of 2 to 6 moist or dry. They are clay loam, gravelly clay loam, very gravelly clay loam, or very gravelly sandy clay loam. They are 5 to 50 percent rock fragments and 27 to 40 percent clay. They are slightly alkaline or moderately alkaline.

Robson Series

The Robson series consists of shallow, well drained soils that formed in residuum derived from basalt, welded tuff, and andesite. The soils are on hills and plateaus. Slope is 2 to 30 percent. Elevation is 4,400 to 6,500 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Lithic Xeric Haplargids

Typical pedon of Robson very cobbly clay loam in an area of Robson-Fourwheel complex, 3 to 30 percent slopes; about 500 feet north and 2,280 feet west of the southeast corner of sec. 21, T. 39 S., R. 37 E.; Trout Creek Canyon quadrangle.

A—0 to 4 inches; light brownish gray (10YR 6/2) very cobbly clay loam, dark grayish brown (10YR 4/2) moist; weak medium subangular blocky structure; slightly hard, very friable, very sticky and very plastic; common very fine, fine, and medium roots; many very fine and fine tubular and irregular pores; 30 percent gravel and 25 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

Bt—4 to 13 inches; brown (10YR 5/3) very gravelly clay, dark brown (10YR 4/3) moist; moderate medium angular blocky structure; hard, firm, very sticky and very plastic; common very fine, fine, and medium roots; many very fine and fine tubular and irregular pores; common faint clay films on faces of peds and lining pores; 50 percent gravel and 5 percent cobbles; neutral (pH 7.2); abrupt wavy boundary.

R—13 inches; basalt.

Thickness of the solum and depth to bedrock are 12 to 20 inches. The particle-size control section averages 50 to 65 percent rock fragments, mainly gravel, and 40 to 50 percent clay. The profile has hue of 10YR or 7.5YR.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is cobbly clay loam, very cobbly clay loam, or very stony loam. It is 15 to 60 percent rock fragments and 20 to 35 percent clay.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is very gravelly clay, very cobbly clay, or extremely gravelly clay. It is 50 to 65 percent rock fragments and 40 to 50 percent clay. It is neutral or slightly alkaline.

Roca Series

The Roca series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and rhyolite. The soils are on hills. Slope is 15 to 40 percent. Elevation is 4,200 to 5,800 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Xeric Haplargids

Typical pedon of Roca very cobbly clay loam, 15 to 40 percent south slopes, about 300 feet south and 1,200 feet east of the northwest corner of sec. 30, T. 37 S., R. 33 E.; Fields quadrangle.

A—0 to 8 inches; pale brown (10YR 6/3) very cobbly clay loam, brown (10YR 4/3) moist; weak very fine subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium roots; many very fine and fine irregular pores; 20 percent gravel and 20 percent cobbles; neutral (pH 7.2)); clear wavy boundary.

Bt1—8 to 12 inches; yellowish brown (10YR 5/4) very gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure parting to moderate very fine subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and fine irregular and interstitial pores; few distinct clay films on faces of peds; 30 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.6); clear smooth boundary.

Bt2—12 to 16 inches; brown (7.5YR 5/4) very gravelly clay, dark brown (7.5YR 4/4) moist; moderate medium subangular blocky structure parting to moderate fine subangular blocky; slightly hard, firm, moderately sticky and moderately plastic; few very fine and fine and common medium roots; common very fine and fine irregular and tubular pores; many distinct clay films on faces of peds and lining pores; 30 percent gravel and 10 percent cobbles; moderately alkaline (pH 8.0); clear wavy boundary.

Bt3—16 to 22 inches; light brown (7.5YR 6/4) very cobbly clay loam, brown (7.5YR 4/4) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and medium roots; many very fine irregular pores; few distinct clay films on faces of peds; 35 percent gravel and 20 percent cobbles; moderately alkaline (pH 8.2); clear wavy boundary.

R—22 inches; basalt.

Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly gravel and cobbles, and 35 to 50 percent clay.

The A horizon is 35 to 55 percent rock fragments and 27 to 35 percent clay. It is neutral or slightly alkaline.

The Bt horizon has hue of 7.5YR or 10YR. It is very gravelly clay loam, very gravelly clay, very cobbly clay, or very cobbly clay loam. It is 35 to 50 percent rock fragments and 35 to 50 percent clay. It is slightly alkaline or moderately alkaline.

Roschene Series

The Roschene series consists of very deep, moderately well drained soils that formed in alluvium. The soils are on stream terraces. Slope is 0 to 3 percent. Elevation is 4,500 to 5,500 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Cumulic Haploxerolls

Typical pedon of Roschene loam in an area of Welch-Roschene-Cumulic Haploxerolls complex, 0 to 3 percent slopes; about 2,200 feet north and 2,500 feet west of the southeast corner of sec. 32, T. 21 S., R. 26 E.; Camp Currey Spring quadrangle.

A1—0 to 5 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate thin platy structure; slightly hard, very friable, nonsticky and slightly plastic; few very fine, many fine, and common medium roots; few fine vesicular pores; slightly effervescent; moderately alkaline (pH 8.0); clear smooth boundary.

A2—5 to 18 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak medium and coarse subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; few very fine and medium and common fine roots; common very fine and few fine vesicular pores; moderately alkaline (pH 8.0); clear wavy boundary.

2A3—18 to 36 inches; grayish brown (10YR 5/2) clay loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; few very fine and fine roots; many fine and few medium irregular pores; slightly alkaline (pH 7.6); gradual wavy boundary.

2Bw—36 to 62 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common fine and medium irregular pores; common distinct iron concentrations that are reddish brown (5YR 4/4) when moist; slightly alkaline (pH 7.4).

The mollic epipedon is 24 to 55 inches thick. Depth to bedrock and thickness of the solum are more than 60 inches. Occasional flooding occurs in spring. A high water table is present late in winter, in spring, and early in summer. The particle-size control section averages 0 to 10 percent rock fragments, mainly gravel, and 20 to 30 percent clay.

The A and 2A horizons have value of 3 to 5 dry and 2 or 3 moist, and they have chroma of 1 or 2 dry or moist. Chroma of 1 occurs only in the upper 20 inches. The A horizon is noncalcareous or slightly calcareous, and the 2A horizon is noncalcareous. The A horizon is loam and the 2A horizon is loam or clay loam with 18 to 35 percent clay.

The 2Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is loam or clay loam with 20 to 35 percent clay. It is neutral or slightly alkaline.

Royst Series

The Royst series consists of moderately deep, well drained soils that formed in colluvium and residuum over welded tuff, basalt, and andesite. The soils are on hills and plateaus. Slope is 2 to 20 percent. Elevation is 4,700 to 5,400 feet. The mean annual precipitation is 14 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, frigid Pachic Argixerolls

Typical pedon of Royst very cobbly loam in an area of Royst-Merlin complex, 2 to 20 percent slopes; about 660 feet south and 1,980 feet west of the northeast corner of sec. 22, T. 21 S., R. 27 E.; Egypt Canyon quadrangle.

A1—0 to 3 inches; dark grayish brown (10YR 4/2) very cobbly loam, very dark brown (10YR 2/2) moist; weak fine granular structure; slightly hard, very friable, slightly

sticky and slightly plastic; common fine and few medium roots; common fine irregular pores; 10 percent gravel, 20 percent cobbles, and 10 percent stones; neutral (pH 6.6); abrupt smooth boundary.

A2—3 to 7 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark brown (10YR 2/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and medium roots; common fine irregular pores; 5 percent gravel and 15 percent cobbles; neutral (pH 6.7); clear wavy boundary.

Bt1—7 to 14 inches; brown (7.5YR 4/3) very stony clay loam, dark brown (7.5YR 3/3) moist; moderate fine subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few fine and medium roots; few fine irregular pores; common distinct clay films on faces of peds; 5 percent cobbles and 45 percent stones; neutral (pH 6.8); gradual wavy boundary.

Bt2—14 to 22 inches; brown (7.5YR 4/3) very stony clay loam, dark brown (7.5YR 3/3) moist; moderate fine angular blocky structure; hard, firm, very sticky and very plastic; few fine and medium roots; few fine irregular pores; common distinct clay films on faces of peds; 5 percent cobbles and 40 percent stones; neutral (pH 6.8); abrupt wavy boundary.

Cr—22 to 23 inches; weathered tuff; clear wavy boundary.

R—23 inches; fractured welded tuff with clay films on faces of fractures.

The mollic epipedon is 20 to 30 inches thick. Thickness of the solum and depth to bedrock are 20 to 35 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly cobbles and stones, and 35 to 45 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is 15 to 60 percent rock fragments and 18 to 27 percent clay.

The Bt horizon has hue of 5YR, 7.5YR, or 10YR, value of 4 to 6 dry and 3 or 4 moist, and chroma of 3 moist or dry. It is very cobbly clay loam, very cobbly clay, or very stony clay loam. It is 35 to 60 percent rock fragments and 35 to 45 percent clay.

Sagehen Series

The Sagehen series consists of shallow, well drained soils that formed in colluvium and residuum derived from basalt and andesite. The soils are on mountains and hills. Slope is 5 to 70 percent. Elevation is 4,900 to 7,100 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Lithic Xeric Haplocambids

Typical pedon of Sagehen stony clay loam in an area of Sagehen-Rock outcrop complex, 30 to 70 percent south slopes; about 1,000 feet north and 1,400 feet east of the southwest corner of sec. 29, T. 39 S., R. 38 E.; Pole Canyon quadrangle.

A—0 to 10 inches; light brownish gray (10YR 6/2) stony clay loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium granular structure; soft, very friable, moderately sticky and moderately plastic; many fine and medium roots; many fine irregular and vesicular pores; 10 percent gravel, 5 percent cobbles, and 10 percent stones; neutral (pH 6.8); gradual wavy boundary.

Bw—10 to 19 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine and medium subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; common fine and medium roots; many fine irregular and vesicular pores; 30 percent gravel, 5 percent cobbles, and 2 percent stones; neutral (pH 6.8); clear wavy boundary.

R—19 inches; basalt.

Thickness of the solum and depth to bedrock are 10 to 20 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly gravel, and 25 to 35 percent clay. The profile is neutral or slightly alkaline.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 dry or moist. It is stony clay loam or very stony clay loam. It is 15 to 60 percent rock fragments and 27 to 35 percent clay.

The Bw horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry or moist. It is very gravelly loam or very gravelly clay loam. It is 35 to 50 percent rock fragments and 20 to 35 percent clay.

Sandgap Series

The Sandgap series consists of very deep, somewhat excessively drained soils that formed in eolian sand and alluvium. The soils are on dunes and lake terraces. Slope is 1 to 8 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Mixed, frigid Haploduridic Xeric Torripsamments

Typical pedon of Sandgap sand, 3 to 8 percent slopes, about 2,100 feet south and 1,200 feet west of the northeast corner of sec. 6, T. 28 S., R. 30 E.; Southeast Harney Lake quadrangle.

A1—0 to 2 inches; light brownish gray (10YR 6/2) sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; 20 percent sand-sized ash; neutral (pH 7.2); abrupt smooth boundary.

A2—2 to 6 inches; light brownish gray (10YR 6/2) loamy sand, dark brown (10YR 4/3) moist; weak medium subangular blocky structure; slightly hard, very friable, nonsticky and nonplastic; few very fine and fine roots; many very fine irregular pores and few fine tubular pores; neutral (pH 7.2); clear smooth boundary.

C—6 to 19 inches; yellowish brown (10YR 5/4) loamy sand, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine, medium, and coarse roots; many very fine irregular pores; slightly alkaline (pH 7.6); clear smooth boundary.

2Ckqm—19 to 30 inches; pale brown (10YR 6/3) loamy sand, yellowish brown (10YR 5/4) moist; massive; hard, firm and brittle, nonsticky and nonplastic; few very fine roots; many very fine irregular pores; violently effervescent with carbonates segregated in filaments; moderately alkaline (pH 7.9); gradual smooth boundary.

3Cq—30 to 45 inches; light brownish gray (10YR 6/2) loamy sand, yellowish brown (10YR 5/4) moist; massive; hard, very firm and brittle, nonsticky and nonplastic; many very fine irregular pores; brittleness is discontinuous; slightly alkaline (pH 7.4); gradual irregular boundary.

3Ck—45 to 60 inches; very pale brown (10YR 7/3) sandy loam, light yellowish brown (10YR 6/4) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; many very fine irregular pores; violently effervescent with carbonates segregated in filaments and soft masses; slightly alkaline (pH 7.6).

Bedrock is at a depth of more than 60 inches. Depth to the continuous brittle layer and to carbonates is 15 to 20 inches. Rare ponding occurs in spring in some years. The particle-size control section averages 0 to 5 percent rock fragments, mainly gravel, 2 to 10 percent clay, and 75 to 90 percent sand.

The A and C horizons have value of 6 or 7 dry and 3 or 4 moist, and they have chroma of 2 or 3 dry or moist. They are sand or loamy sand. They are neutral to moderately alkaline.

The 2C and 3C horizons have value of 5 to 7 dry and 4 to 6 moist, and they have

chroma of 2 to 4 moist or dry. They are dominantly loamy sand or sand, but they range to sandy loam below a depth of 40 inches. They are slightly alkaline or moderately alkaline.

Seharney Series

The Seharney series consists of soils that are shallow to a duripan and are well drained. The soils formed in residuum over basalt and andesite. They are on plateaus and hills. Slope is 3 to 12 percent. Elevation is 4,200 to 5,000 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid, shallow Xerochreptic Haplodurids

Typical pedon of Seharney cobbly silt loam, 3 to 12 percent slopes, about 2,300 feet south and 2,100 feet east of the northwest corner of sec. 15, T. 28 S., R. 30 E.; Coyote Buttes quadrangle.

A1—0 to 2 inches; light gray (10YR 7/2) cobbly silt loam, brown (10YR 4/3) moist; weak medium platy structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many very fine and fine irregular pores; 10 percent gravel and 15 percent cobbles; neutral (pH 7.0); abrupt smooth boundary.

A2—2 to 5 inches; pale brown (10YR 6/3) silt loam, brown (10YR 4/3) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; many very fine and fine irregular pores; 5 percent gravel; neutral (pH 7.2); clear wavy boundary.

Bw—5 to 11 inches; pale brown (10YR 6/3) cobbly silt loam, brown (10YR 4/3) moist; moderate coarse subangular blocky structure parting to moderate medium subangular blocky; slightly hard, very friable, slightly sticky and slightly plastic; many fine and common medium roots; many very fine and fine irregular pores; 5 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); clear wavy boundary.

Bq—11 to 17 inches; very pale brown (10YR 7/3) very cobbly silt loam, yellowish brown (10YR 5/4) moist; moderate medium subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common medium roots; common fine irregular pores; 10 percent durinodes; 5 percent gravel, 30 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.7); abrupt wavy boundary.

Bkqm—17 to 24 inches; very pale brown (10YR 8/3) strongly cemented duripan, light yellowish brown (10YR 6/4) moist; massive; extremely hard and brittle; strongly effervescent with disseminated carbonates; 5 percent gravel and 40 percent cobbles; clear wavy boundary.

2R—24 inches; fractured basalt.

Thickness of the solum and depth to the duripan are 10 to 20 inches. Depth to bedrock is 20 to 30 inches. The particle-size control section averages 35 to 50 percent rock fragments, mainly cobbles, 18 to 27 percent clay, and 15 to 40 percent sand.

The A horizon has value of 4 or 5 moist.

The Bw and Bq horizons have value of 6 to 8 dry and 4 to 6 moist. They are cobbly loam or cobbly silt loam over very cobbly silt loam or very cobbly loam. They are 20 to 50 percent rock fragments and 18 to 27 percent clay. The Bw horizon is neutral or slightly alkaline.

The Bkqm horizon has value of 7 or 8 dry and 5 or 6 moist, and it has chroma of 3 or 4 moist or dry. It is 5 to 10 inches thick.

Skedaddle Series

The Skedaddle series consists of very shallow and shallow, well drained soils that formed in colluvium and residuum derived from basalt, andesite, and rhyolite. The soils are on hills and mountains. Slope is 5 to 70 percent. Elevation is 4,200 to 5,300 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, nonacid, mesic Lithic Xeric Torriorthents

Typical pedon of Skedaddle very cobbly clay loam in an area of Skedaddle-Atlow-Rock outcrop complex, 5 to 30 percent slopes; about 1,300 feet north and 2,100 feet east of the southwest corner of sec. 29, T. 37 S., R. 34 E.; Borax Lake quadrangle.

A1—0 to 3 inches; light brownish gray (10YR 6/2) very cobbly clay loam, dark grayish brown (10YR 4/2) moist; moderate medium platy structure; slightly hard, very friable, moderately sticky and moderately plastic; common fine and medium roots; many very fine and fine vesicular pores; 25 percent gravel, 15 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.8); gradual wavy boundary.

A2—3 to 8 inches; grayish brown (10YR 5/2) very cobbly clay loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; soft, very friable, moderately sticky and moderately plastic; common fine and medium roots; many very fine irregular pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.8); gradual wavy boundary.

C—8 to 11 inches; light brown (7.5YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; massive; soft, very friable, very sticky and very plastic; few fine and medium roots; common very fine irregular pores; 20 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.8); abrupt wavy boundary.

R—11 inches; fractured basalt.

Depth to bedrock is 7 to 12 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly cobbles, and 20 to 30 percent clay.

The A1 horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 2 or 3 moist and 2 dry. It is very gravelly sandy loam, very cobbly clay loam, or very stony clay loam. It is 35 to 60 percent rock fragments and 18 to 30 percent clay.

The A2 horizon has value of 5 or 6 dry and 4 or 5 moist, and it has chroma of 2 or 3 moist and 2 dry. It is very cobbly loam, very cobbly clay loam, or very stony clay loam. It is 35 to 60 percent rock fragments and 20 to 30 percent clay.

The C horizon has hue of 10YR or 7.5YR. It is very cobbly loam or very cobbly clay loam. It is 35 to 55 percent rock fragments and 20 to 30 percent clay.

Skidoosprings Series

The Skidoosprings series consists of soils that are deep to a duripan and are moderately well drained. The soils formed in lacustrine sediment. They are on lake plains. Slope is 0 to 3 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Coarse-loamy, mixed (calcareous), frigid Aeric Halaquepts

Typical pedon of Skidoosprings sandy loam, 0 to 3 percent slopes, about 2,400

feet west and 1,000 feet south of the northeast corner of sec. 31, T. 22 S., R. 33 E.; Carson Point quadrangle.

A—0 to 11 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine roots; many very fine tubular pores; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.4); clear smooth boundary.

Bw—11 to 23 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; weak medium prismatic structure parting to weak fine and medium subangular blocky; hard, firm, nonsticky and nonplastic; common fine roots; many very fine tubular pores; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); gradual smooth boundary.

Bq—23 to 30 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine roots; many very fine tubular pores; weak discontinuous cementation; strongly effervescent with disseminated carbonates; strongly alkaline (pH 9.0); clear smooth boundary.

BC—30 to 41 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 5/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine roots; few faint iron concentrations that are reddish brown (5YR 4/3) when moist; strongly effervescent with disseminated carbonates; strongly alkaline (pH 8.8); abrupt wavy boundary.

2Bqm—41 to 49 inches; light gray (10YR 7/2) indurated duripan, yellowish brown (10YR 5/4) moist; laminar opal coatings on upper surface; strongly effervescent in upper 1 inch and noneffervescent below; abrupt wavy boundary.

2C—49 to 60 inches; very pale brown (10YR 7/3) coarse sandy loam, brown (10YR 5/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; strongly alkaline (pH 8.6).

The duripan is at a depth of 40 to 50 inches. Bedrock is at a depth of more than 60 inches. Depth to the discontinuously cemented Bq horizon is 15 to 30 inches. The particle-size control section averages 10 to 18 percent clay and 0 to 10 percent rock fragments. The solum is strongly alkaline or very strongly alkaline. Occasional or rare ponding occurs in spring. A high water table occurs in spring.

The A horizon has value of 3 or 4 moist and 6 dry, and it has chroma of 2 or 3 moist or dry. It is 10 to 18 percent clay. The sodium adsorption ratio is 30 to 90. Electrical conductivity is 2 to 10 millimhos per centimeter.

The Bw and Bq horizons have value of 4 or 5 moist and 6 dry, and they have chroma of 3 moist or dry. They are 10 to 18 percent clay. The sodium adsorption ratio is 60 to 350. Electrical conductivity is 2 to 10 millimhos per centimeter.

The BC horizon has color and texture similar to those of the Bw and Bq horizons. The sodium adsorption ratio is 10 to 30. Electrical conductivity is 2 to 4 millimhos per centimeter.

The 2Bqm horizon is 1 to 12 inches thick. It has value of 5 moist and 7 dry and chroma of 4 moist and 2 dry.

The 2C horizon has value of 5 moist and 6 or 7 dry, and it has chroma of 3 or 4 moist or dry. It is 5 to 15 percent clay and 0 to 10 percent rock fragments. The sodium adsorption ratio is 10 to 20. Electrical conductivity is 2 to 4 millimhos per centimeter.

Skunkfarm Series

The Skunkfarm series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent.

Elevation is 4,100 to 4,200 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Typic Endoaquolls

Typical pedon of Skunkfarm silt loam in an area of Skunkfarm-Mcbain-Doubleo complex, 0 to 2 percent slopes; about 300 feet west and 4,780 feet south of the northeast corner of sec. 22, T. 28 S., R. 31 E.; Coyote Buttes quadrangle.

A—0 to 2 inches; very dark grayish brown (10YR 3/2) silt loam, very dark brown (10YR 2/2) moist; moderate very fine and fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine roots; common very fine interstitial pores; slightly alkaline (pH 7.8); clear wavy boundary.

Bw1—2 to 6 inches; very dark grayish brown (10YR 3/2) clay loam, very dark brown (10YR 2/2) moist; moderate very fine subangular blocky structure; moderately hard, friable, moderately sticky and very plastic; common very fine roots; common very fine tubular pores; few fine distinct iron concentrations that are dark yellowish brown (10YR 4/6) when moist; slightly alkaline (pH 7.8); clear wavy boundary.

Bw2—6 to 13 inches; brown (10YR 4/3) clay loam, very dark grayish brown (10YR 3/2) moist; moderate very fine and fine subangular blocky structure; moderately hard, friable, moderately sticky and moderately plastic; common very fine roots; common very fine tubular pores; common fine and medium distinct iron concentrations that are dark yellowish brown (10YR 4/6) when moist; slightly alkaline (pH 7.8); clear wavy boundary.

Bw3—13 to 18 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 4/3) moist; moderate very fine and fine subangular blocky structure; moderately hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and few fine tubular pores; common fine and medium distinct iron concentrations that are dark yellowish brown (10YR 4/6) when moist; slightly alkaline (pH 7.6); clear wavy boundary.

BC—18 to 29 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; weak fine subangular blocky structure; moderately hard, friable, slightly sticky and slightly plastic; few very fine and few fine roots; many very fine tubular pores; common fine and medium distinct iron concentrations that are dark yellowish brown (10YR 4/6) when moist and common fine distinct depletions that are dark gray (10YR 4/1) when moist; slightly alkaline (pH 7.6); diffuse wavy boundary.

C1—29 to 46 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; moderate thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; few very fine roots; few fine faint iron concentrations that are dark yellowish brown (10YR 4/6) when moist; slightly alkaline (pH 7.6); diffuse wavy boundary.

C2—46 to 60 inches; brown (10YR 5/3) fine sandy loam, dark brown (10YR 4/3) moist; massive; slightly hard, very friable, nonsticky and nonplastic; few fine faint iron concentrations that are dark yellowish brown (10YR 4/6) when moist; moderately alkaline (pH 8.0).

The particle-size control section averages 18 to 27 percent clay. The mollic epipedon is 10 to 20 inches thick. Occasional ponding occurs in spring. A high water table is present in spring.

The A horizon has value of 3 to 5 dry.

The Bw horizon has value of 3 to 6 dry. The upper part has chroma of 2 moist, and the lower part has chroma of 2 or 3 moist. The horizon is clay loam, silty clay loam, or loam with 25 to 35 percent clay. It is slightly alkaline or moderately alkaline.

The BC horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or

3 moist or dry. It is loam or silty clay loam with 15 to 30 percent clay. It is slightly alkaline or moderately alkaline.

The C horizon has value of 5 or 6 dry. It is slightly alkaline or moderately alkaline.

Spangenburg Series

The Spangenburg series consists of very deep, well drained and moderately well drained soils that formed in lacustrine sediment. The soils are on lake terraces and lake plains. Slope is 0 to 2 percent. Elevation is 4,300 to 5,300 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Xeric Paleargids

Typical pedon of Spangenburg silty clay loam, 0 to 1 percent slopes, about 300 feet south and 1,400 feet west of the northeast corner of sec. 26, T. 34 S., R. 31 E.; Blitzen quadrangle.

A—0 to 2 inches; light brownish gray (10YR 6/2) silty clay loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure; slightly hard, very friable, very sticky and moderately plastic; many fine roots; many fine and medium vesicular pores; neutral (pH 7.2); abrupt wavy boundary.

2Bt1—2 to 6 inches; pale brown (10YR 6/3) silty clay, brown (10YR 4/3) moist; moderate medium prismatic structure parting to strong medium and fine subangular blocky; hard, firm, very sticky and moderately plastic; many fine roots; many very fine tubular pores; common faint clay films lining pores; slightly alkaline (pH 7.4); clear wavy boundary.

3Bt2—6 to 15 inches; yellowish brown (10YR 5/4) silty clay, dark yellowish brown (10YR 4/4) moist; moderate fine angular blocky structure; slightly hard, friable, very sticky and moderately plastic; many fine roots; many very fine tubular pores; few faint clay films lining pores; moderately alkaline (pH 8.0); clear wavy boundary.

3Btk—15 to 34 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 4/3) moist; massive; slightly hard, friable, slightly sticky and moderately plastic; common fine roots; many very fine tubular pores; few faint clay films lining pores; 20 percent disseminated white ash; slightly effervescent; moderately alkaline (pH 8.0); abrupt wavy boundary.

4C—34 to 60 inches; very pale brown (10YR 7/3) loam, brown (10YR 4/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; laminar platy lacustrine sediment; moderately alkaline (pH 8.0).

Bedrock is at a depth of more than 60 inches. The solum is 10 to 30 inches thick. The content of clay in the 2Bt horizon is 15 to 25 percent more than that of the A horizon. Occasional ponding occurs in spring in some years. A high water table is present late in winter and in spring in some years.

The A horizon is 2 to 10 inches thick. It has value of 5 to 7 dry and 3 or 4 moist, and it has chroma of 1 to 3 dry and 2 moist. It is neutral or slightly alkaline. It is silty clay loam or silt loam.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 dry and 2 to 4 moist. The upper part is clay or silty clay with 45 to 60 percent clay. The lower part is silty clay loam or silt loam with 25 to 40 percent clay. The horizon is slightly alkaline or moderately alkaline.

The C horizon has value of 6 or 7 dry and 3 to 5 moist, and it has chroma of 3 or 4

dry or moist. It is stratified loam, silt loam, or silty clay loam. It is slightly alkaline or moderately alkaline.

Srednic Series

The Srednic series consists of soils that are moderately deep to a duripan and are well drained. The soils formed in cinders and eolian sand over welded tuff and basalt. They are on hills. Slope is 2 to 20 percent. Elevation is 4,100 to 4,700 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Ashy, frigid Vitrixerandic Haplodurids

Typical pedon of Srednic very gravelly coarse sandy loam in an area of Srednic-Aval complex, 2 to 20 percent slopes; about 2,200 feet north and 1,500 feet west of the southeast corner of sec. 10, T. 29 S., R. 32 E.; Diamond quadrangle.

A—0 to 2 inches; brown (10YR 4/3) very gravelly coarse sandy loam, very dark brown (10YR 2/2) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 35 percent gravel; neutral (pH 6.6); abrupt smooth boundary.

Bw1—2 to 6 inches; brown (10YR 5/3) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine and few fine roots; few very fine tubular pores; 30 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw2—6 to 17 inches; brown (10YR 5/3) gravelly sandy loam, very dark grayish brown (10YR 3/2) moist; weak fine and medium subangular blocky structure; soft, very friable, nonsticky and slightly plastic; common very fine and few fine, medium, and coarse roots; few very fine tubular pores; 30 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bw3—17 to 25 inches; pale brown (10YR 6/3) gravelly loam, dark brown (10YR 3/3) moist; moderate medium and coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and few fine and medium roots; common very fine tubular pores; slightly effervescent with disseminated carbonates; 25 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0); abrupt wavy boundary.

Bkqm1—25 to 27 inches; light gray (10YR 7/2), white (10YR 8/1), and very pale brown (10YR 7/4) strongly cemented duripan, light yellowish brown (10YR 6/4) and very pale brown (10YR 7/4) moist; few very fine roots; strongly effervescent with disseminated carbonates; abrupt smooth boundary.

Bkqm2—27 to 30 inches; light gray (10YR 7/2), white (10YR 8/1), and very pale brown (10YR 7/4) indurated duripan with pockets of weathered bedrock, light yellowish brown (10YR 6/4) and very pale brown (10YR 7/4) moist; violently effervescent with disseminated carbonates; abrupt smooth boundary.

2R—30 inches; welded tuff.

Depth to bedrock is 25 to 50 inches. Thickness of the solum and depth to the duripan are 20 to 40 inches. Depth to carbonates is 12 to 20 inches. The particle-size control section averages 15 to 35 percent rock fragments, mainly gravel-sized cinders, and 5 to 18 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 dry or moist. It is 35 to 50 percent gravel-sized cinders and 5 to 12 percent clay. It is 1 to 3 percent organic matter.

The upper part of the Bw horizon has value of 4 or 5 dry. It is gravelly sandy loam, very gravelly sandy loam, or gravelly loam. It is 15 to 40 percent rock fragments and 5 to 18 percent clay. It is 0.5 to 1.0 percent organic matter. The lower part of the

Bw horizon has value of 5 or 6 dry and 2 or 3 moist, and it has chroma of 2 to 4 dry or moist. It is gravelly sandy loam or gravelly loam. It is 15 to 35 percent rock fragments and 5 to 18 percent clay.

The Bkqm horizon has value of 7 or 8 dry and 6 or 7 moist, and it has chroma of 1 to 4 dry or moist. It is 3 to 10 inches thick.

Stampede Series

The Stampede series consists of moderately deep, well drained soils that formed in old alluvium (fig. 16). The soils are on stream terraces. Slope is 1 to 5 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Vertic Durixerolls

Typical pedon of Stampede loam, 1 to 5 percent slopes, about 1,900 feet south and 25 feet east of the northwest corner of sec. 3, T. 23 S., R. 26 E.; Riley quadrangle.

A—0 to 3 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak thin platy structure; soft, very friable, slightly sticky and slightly plastic; common fine and few very fine roots; common fine tubular pores; 10 percent gravel; neutral (pH 7.0); clear wavy boundary.

BA—3 to 11 inches; brown (10YR 5/3) clay loam, dark brown (10YR 3/3) moist; moderate very fine granular structure parting to moderate fine and medium subangular blocky; slightly hard, friable, moderately sticky and moderately plastic; few fine and very fine roots; common fine tubular pores; 10 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

Bt1—11 to 16 inches; brown (10YR 5/3) clay, dark brown (10YR 4/3) moist; weak very fine and fine prismatic structure parting to strong fine and medium subangular blocky; hard, friable, moderately sticky and moderately plastic; few very fine roots; common fine tubular pores; few faint clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

Bt2—16 to 19 inches; yellowish brown (10YR 5/4) clay, dark yellowish brown (10YR 4/4) moist; strong very fine and fine subangular blocky structure; hard, very firm, very sticky and very plastic; few very fine and fine roots; common fine interstitial pores; common distinct clay films on faces of peds; 10 percent gravel; slightly alkaline (pH 7.4); abrupt wavy boundary.

2C—19 to 23 inches; very pale brown (10YR 7/4) very gravelly sandy clay loam, yellowish brown (10YR 5/6) moist; massive; very hard, firm, slightly sticky and nonplastic; few very fine roots; 55 percent gravel; slightly effervescent; slightly alkaline (pH 7.8); abrupt wavy boundary.

2Ckqm—23 to 33 inches; light yellowish brown (10YR 6/4) indurated duripan, dark yellowish brown (10YR 4/4) moist; massive; extremely hard; opal pendants on underside of plates; strongly effervescent with disseminated carbonates; clear wavy boundary.

2C´—33 to 60 inches; pale brown (10YR 6/3) gravelly sandy loam, brown (10YR 4/3) moist; massive; hard, firm, nonsticky and nonplastic; few fine interstitial pores; 30 percent gravel; slightly effervescent; slightly alkaline (pH 7.6).

The mollic epipedon is 7 to 13 inches thick. Thickness of the solum and depth to the duripan are 20 to 30 inches. Depth to carbonates is 15 to 30 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 40 to 50 percent clay.

The A horizon is 0 to 15 percent rock fragments and 20 to 27 percent clay. It is neutral or slightly alkaline.



Figure 16.—Typical profile of a Stampede soil. A duripan is between depths of 23 and 33 inches. Very gravelly sandy loam derived from old alluvium is below the duripan.

The Bt horizon is 0 to 15 percent rock fragments and 40 to 50 percent clay. It is neutral or slightly alkaline.

The 2C horizon is 35 to 60 percent rock fragments and 25 to 30 percent clay. It is neutral or slightly alkaline.

The 2Ckqm horizon is 5 to 10 inches thick. It has hue of 2.5Y or 10YR.

The 2C´ horizon is gravelly sandy loam or very gravelly sandy loam. It is 15 to 50 percent rock fragments and 10 to 20 percent clay. It is slightly alkaline or moderately alkaline.

Swaler Series

The Swaler series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are in closed depressions of plateaus and lake plains. Slope is 0 to 2 percent. Elevation is 4,200 to 5,700 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Xeric Paleargids

Typical pedon of Swaler silt loam, 0 to 1 percent slopes, about 250 feet south and 700 feet west of the northeast corner of sec. 27, T. 34 S., R. 31 E.; Blitzen quadrangle.

A1—0 to 3 inches; light gray (10YR 7/1) silt loam, dark grayish brown (10YR 4/2) moist; weak thin platy structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many fine and medium vesicular pores; neutral (pH 7.0); abrupt smooth boundary.

A2—3 to 10 inches; light gray (10YR 7/2) silt loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; common fine roots; many very fine tubular pores; slightly alkaline (pH 7.8); clear smooth boundary.

2Bt1—10 to 18 inches; light brownish gray (10YR 6/2) silty clay, dark grayish brown (10YR 4/2) moist; weak fine prismatic structure parting to moderate medium and fine subangular blocky; hard, firm, moderately sticky and moderately plastic; common fine roots; common very fine tubular pores; common faint continuous clay films; moderately alkaline (pH 8.0); clear wavy boundary.

2Bt2—18 to 27 inches; brown (10YR 5/3) silty clay, dark grayish brown (10YR 4/2) moist; strong fine subangular blocky structure; hard, firm, moderately sticky and moderately plastic; many fine roots; common very fine tubular pores; prominent continuous clay films; moderately alkaline (pH 8.2); gradual wavy boundary.

3C—27 to 60 inches; pale brown (10YR 6/3) silty clay loam, brown (10YR 5/3) moist; massive; hard, firm, moderately sticky and moderately plastic; many fine roots; lacustrine rocklike structure; moderately alkaline (pH 8.2).

The particle-size control section averages 35 to 50 percent clay. Bedrock is at a depth of more than 60 inches. Rare ponding occurs in spring. The content of clay in the 2Bt horizon is 15 to 25 percent more than that of the A horizon. Depth to the 2Bt horizon is 3 to 14 inches.

The A horizon has hue of 5 to 7 dry and 3 to 5 moist, and it has chroma of 1 or 2 moist or dry.

The 2Bt horizon has value of 5 to 7 dry and 3 to 6 moist, and it has chroma of 2 to 4 moist or dry. It is silty clay loam, silty clay, or clay with 35 to 50 percent clay. It is neutral to moderately alkaline.

The 3C horizon has hue of 10YR to 5Y, value of 6 or 7 dry and 4 or 5 moist, and

chroma of 2 to 4 moist or dry. It is silty clay loam or clay loam. It is neutral to moderately alkaline.

Swalesilver Series

The Swalesilver series consists of very deep, somewhat poorly drained soils that formed in lacustrine sediment. The soils are in closed depressions on plateaus and on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 5,700 feet. The mean annual precipitation is 8 to 14 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine, montmorillonitic, frigid Aquic Palexeralfs

Typical pedon of Swalesilver silt loam, dry, 0 to 2 percent slopes, about 1,000 feet north and 1,000 feet west of the southeast corner of sec. 11, T. 30 S., R. 29 E.; Keg Springs Valley West quadrangle.

A1—0 to 3 inches; very pale brown (10YR 7/3) silt loam, brown (10YR 4/3) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and slightly plastic; few coarse and many fine and medium roots; many fine and medium irregular pores; neutral (pH 6.8); clear smooth boundary.

A2—3 to 6 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; moderate medium platy structure; slightly hard, very friable, nonsticky and slightly plastic; few coarse and many fine and medium roots; many fine and medium irregular pores; few fine prominent yellowish red (5YR 4/6) iron concentrations; neutral (pH 7.0); abrupt smooth boundary.

2Bt1—6 to 18 inches; light brownish gray (10YR 6/2) clay, grayish brown (10YR 5/2) moist; strong medium prismatic structure parting to strong coarse angular blocky; hard, firm, moderately sticky and very plastic; common medium roots; few fine irregular and tubular pores; continuous prominent clay films on faces of peds; slightly alkaline (pH 7.4); clear smooth boundary.

2Bt2—18 to 23 inches; light brownish gray (2.5Y 6/2) clay, grayish brown (2.5Y 5/2) moist; strong medium angular blocky structure parting to strong fine angular blocky; hard, firm, moderately sticky and moderately plastic; few medium roots; few fine irregular and tubular pores; many prominent clay films on faces of peds; slightly alkaline (pH 7.6); clear smooth boundary.

3Bk—23 to 34 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; moderate fine subangular blocky structure; hard, friable, slightly sticky and slightly plastic; few medium roots; many fine and medium irregular pores; slightly effervescent with common segregated carbonates occurring as filaments; moderately alkaline (pH 8.2); clear smooth boundary.

3C1—34 to 49 inches; light gray (2.5Y 7/2) silt loam, grayish brown (2.5Y 5/2) moist; massive; hard, friable, slightly sticky and slightly plastic; few medium roots; many fine and medium irregular pores; slightly alkaline (pH 7.8); abrupt smooth boundary.

3C2—49 to 61 inches; pale yellow (5Y 7/3) silt loam, olive (5Y 5/3) moist; massive; slightly hard, friable, slightly sticky and slightly plastic; few medium roots; many very fine and fine irregular pores; slightly alkaline (pH 7.8).

The solum is 25 to 40 inches thick. Bedrock is at a depth of more than 60 inches. Frequent or rare ponding occurs in spring. A high water table is present late in winter and in spring. The particle-size control section averages 45 to 65 percent clay. The content of clay in the 2Bt horizon is 20 to 40 percent more than that of the A horizon. Depth to the 2Bt horizon is 2 to 11 inches.

The A horizon is 2 to 8 inches thick. It is 15 to 25 percent clay. It is neutral or slightly alkaline.

The 2Bt horizon has hue of 2.5Y or 10YR. It is clay or silty clay with 45 to 65 percent clay. It is slightly alkaline or moderately alkaline.

The 3Bk and 3C horizons have hue of 2.5Y or 5Y. They are stratified silt loam to clay loam with 15 to 30 percent clay. They are slightly alkaline to strongly alkaline.

Teguro Series

The Teguro series consists of shallow, well drained soils that formed in residuum and colluvium derived from welded tuff, andesite, and basalt. The soils are on plateaus. Slope is 2 to 20 percent. Elevation is 4,100 to 6,100 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Loamy, mixed, frigid Lithic Argixerolls

Typical pedon of Teguro very cobbly loam, 2 to 20 percent slopes, about 2,000 feet north and 2,200 feet east of the southwest corner of sec. 23, T. 22 S., R. 27 E.; Egypt Canyon quadrangle.

A1—0 to 2 inches; grayish brown (10YR 5/2) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium platy structure parting to weak fine granular; soft, very friable, moderately sticky and moderately plastic; many very fine, common fine, and few medium roots; many very fine, common fine, and few medium vesicular pores; 15 percent gravel, 25 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.4); clear smooth boundary.

A2—2 to 5 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to weak fine granular; soft, very friable, moderately sticky and moderately plastic; common very fine, fine, and medium roots; common fine and medium irregular pores; 5 percent gravel and 5 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—5 to 10 inches; brown (10YR 5/3) cobbly clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine and medium roots; few fine and medium irregular pores; common faint clay films on faces of peds; 5 percent gravel and 10 percent cobbles; slightly alkaline (pH 7.7); clear smooth boundary.

Bt2—10 to 14 inches; yellowish brown (10YR 5/4) cobbly clay loam, dark yellowish brown (10YR 3/4) moist; moderate medium subangular blocky structure; hard, firm, moderately sticky and moderately plastic; few fine and medium roots; few fine and medium irregular pores; common distinct clay films on faces of peds; 5 percent gravel, 20 percent cobbles, and 5 percent stones; slightly alkaline (pH 7.7); clear wavy boundary.

R—14 inches; welded tuff.

The mollic epipedon is 7 to 12 inches thick. Thickness of the solum and depth to bedrock are 14 to 20 inches. The particle-size control section averages 10 to 35 percent rock fragments, mainly gravel and cobbles, and 25 to 35 percent clay. The profile is neutral or slightly alkaline. It has hue of 10YR or 7.5YR.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is 18 to 27 percent clay. The upper part is gravelly loam, very gravelly loam, very cobbly loam, or very stony loam with 15 to 60 percent rock fragments. The lower part is loam, cobbly loam, or gravelly loam with 10 to 35 percent rock fragments.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is gravelly loam, gravelly clay loam, or cobbly clay loam. It is 15 to 35 percent rock fragments and 25 to 35 percent clay.

Thenarrows Series

The Thenarrows series consists of very deep, poorly drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,090 to 4,105 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Coarse-loamy, mixed (calcareous), frigid Typic Halaquepts

Typical pedon of Thenarrows sandy loam in an area of Thenarrows-Duckclub complex, 0 to 1 percent slopes; about 700 feet east and 3,300 feet south of the northwest corner of sec. 4, T. 26 S., R 32 E.; The Narrows quadrangle.

A1—0 to 3 inches; dark gray (5Y 4/1) sandy loam, light brownish gray (2.5Y 6/2) dry; moderate thick platy structure; hard, firm, slightly sticky and nonplastic; many very fine, fine, and medium roots; common very fine and fine tubular pores; common snail shells; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); clear smooth boundary.

A2—3 to 14 inches; dark gray (5Y 4/1); sandy loam, light brownish gray (2.5Y 6/2) dry; weak medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine and fine and common medium roots; many very fine, fine, and medium interstitial pores and common very fine tubular pores; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 24; electrical conductivity is 3; 10 percent calcium carbonate equivalent; very strongly alkaline (pH 9.2); gradual wavy boundary.

A/Bw—14 to 22 inches; 50 percent A material that is dark grayish brown (2.5Y 4/2) loamy sand, light brownish gray (2.5Y 6/2) dry; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; 50 percent Bw material that is light brownish gray (2.5Y 6/2) sandy loam, white (10YR 8/1) dry; weak medium subangular blocky structure; hard, friable, slightly sticky and nonplastic; common very fine and fine roots; common very fine and fine tubular pores; sodium adsorption ratio is 19; electrical conductivity is 2; 21 percent calcium carbonate equivalent; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.4); clear wavy boundary.

Bw—22 to 31 inches; light brownish gray (2.5Y 6/2) sandy loam, white (10YR 8/1) dry; weak coarse and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; common very fine and fine tubular pores; strongly effervescent with disseminated carbonates; sodium adsorption ratio is 19; electrical conductivity is 2; 17 percent calcium carbonate equivalent; very strongly alkaline (pH 9.4); gradual wavy boundary.

Bw/C—31 to 54 inches; 80 percent Bw material that is light brownish gray (2.5Y 6/2) sandy loam, white (10YR 8/1) dry; weak medium subangular blocky structure; hard, firm and brittle, slightly sticky and nonplastic; strongly effervescent with disseminated carbonates; 20 percent C material that is grayish brown (10YR 5/2) loamy sand, light brownish gray (2.5Y 6/2) dry; massive; soft, very friable, nonsticky and nonplastic; strongly effervescent; common very fine and fine roots; common fine and very fine tubular pores; strongly alkaline (pH 8.8); gradual wavy boundary.

C—54 to 60 inches; grayish brown (10YR 5/2) loamy sand, light brownish gray (2.5Y 6/2) dry; massive; soft, very friable, nonsticky and nonplastic; few fine roots; common very fine and fine tubular pores; 10 percent Bw material; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.5).

Depth to bedrock is more than 60 inches. The particle-size control section

averages 10 to 18 percent clay. Occasional ponding occurs in spring. A high water table is present in spring and early in summer.

The A horizon has hue of 2.5Y, 5Y, or 10YR, and it has value of 4 to 6 dry and 3 or 4 moist. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 13 to 25. Electrical conductivity is 2 to 4 millimhos per centimeter.

The Bw horizon has value of 6 to 8 dry and 4 to 6 moist. It is strongly alkaline or very strongly alkaline. The sodium adsorption ratio is 10 to 20. Electrical conductivity is 1 to 2 millimhos per centimeter. The calcium carbonate equivalent is 10 to 20 percent.

The C horizon has value of 6 or 7 dry and 3 to 5 moist, and it has chroma of 1 or 2 moist or dry. It is moderately alkaline to very strongly alkaline. It is slightly effervescent to strongly effervescent. The sodium adsorption ratio is 2 to 5. Electrical conductivity is 0 to 2 millimhos per centimeter.

Ticino Series

The Ticino series consists of moderately deep, well drained soils that formed in residuum derived from welded tuff. The soils are on hills and plateaus. Slope is 2 to 20 percent. Elevation is 3,900 to 5,200 feet. The mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 40 to 43 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Typic Argixerolls

Typical pedon of Ticino cobbly loam in an area of Ticino-Rock outcrop complex, 2 to 20 percent slopes; about 400 feet north and 500 feet west of the southeast corner of sec. 22, T. 21 S., R. 30 E.; Poison Creek quadrangle.

A1—0 to 2 inches; dark grayish brown (10YR 4/2) cobbly loam, very dark grayish brown (10YR 3/2) moist; moderate medium granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine and few fine and medium roots; many very fine and common fine and medium irregular pores; 10 percent gravel, 10 percent cobbles, and 2 percent stones; neutral (pH 7.0); clear smooth boundary.

A2—2 to 9 inches; brown (10YR 5/3) cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine and few medium roots; common very fine and few fine and medium irregular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 7.2); clear smooth boundary.

Bt1—9 to 18 inches; pale brown (10YR 6/3) sandy clay loam, dark yellowish brown (10YR 4/4) moist; strong medium subangular blocky structure parting to moderate medium granular; hard, firm, moderately sticky and moderately plastic; few very fine and coarse and common fine and medium roots; few very fine, fine, and medium irregular pores; common faint and few prominent clay films on faces of peds; 5 percent gravel and 5 percent cobbles; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—18 to 26 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; strong medium subangular blocky structure parting to moderate fine angular blocky; hard, firm, very sticky and moderately plastic; few very fine, fine, and medium roots; few very fine, fine, and medium irregular pores; few faint and distinct clay films on faces of peds; 5 percent gravel; slightly alkaline (pH 7.5); clear smooth boundary.

2Crt—26 to 29 inches; very pale brown (10YR 7/4) weathered tuff, brown (10YR 5/3) moist; common distinct clay films on faces of rock; abrupt smooth boundary.

2R—29 inches; fractured welded tuff.

The mollic epipedon is 8 to 12 inches thick. Depth to bedrock is 20 to 40 inches. The particle-size control section averages 5 to 35 percent rock fragments, mainly gravel, and 20 to 35 percent clay. The 2Crt horizon is absent in some pedons.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is gravelly loam, cobbly loam, or very cobbly loam. It is 15 to 60 percent rock fragments and 18 to 27 percent clay. It is slightly acid or neutral.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is sandy clay loam, clay loam, or gravelly sandy clay loam. It is 5 to 30 percent rock fragments and 25 to 35 percent clay. It is slightly acid to slightly alkaline.

Tincan Series

The Tincan series consists of shallow, well drained soils that formed in colluvium and residuum derived from diatomaceous earth and tuffaceous sedimentary rock. The soils are on hills. Slope is 20 to 60 percent. Elevation is 3,400 to 4,600 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, mesic, shallow Aridic Haploxerolls

Typical pedon of Tincan gravelly silt loam in an area of Porterfield-Tincan-Rock outcrop association, 20 to 60 percent slopes; about 2,300 feet south and 600 feet east of the northwest corner of sec. 11, T. 21 S., R. 35 E.; Drewsey quadrangle.

A1—0 to 10 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak medium platy structure parting to moderate medium subangular blocky; slightly hard, friable, nonsticky and slightly plastic; many very fine and fine and common medium roots; many very fine and fine and common medium interstitial and tubular pores; 30 percent gravel; neutral (pH 6.7); clear smooth boundary.

A2—10 to 16 inches; brown (10YR 5/3) gravelly silt loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; slightly hard, friable, nonsticky and slightly plastic; common very fine, fine, and medium roots; common very fine, fine, and medium interstitial and tubular pores; 25 percent gravel; neutral (pH 6.7); clear wavy boundary.

Cr—16 inches; diatomaceous earth.

Thickness of the mollic epipedon and depth to bedrock are 10 to 20 inches. The particle-size control section is 15 to 35 percent rock fragments, mainly gravel, and 20 to 27 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. The lower part is silt loam or loam.

Toll Series

The Toll series consists of very deep, somewhat excessively drained soils that formed in eolian sand. The soils are on dunes. Slope is 2 to 15 percent. Elevation is 4,000 to 4,800 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Mixed, mesic Xeric Torripsamments

Typical pedon of Toll sand, 2 to 15 percent slopes, about 1,600 feet north and 1,000 feet east of the southwest corner of sec. 29, T. 35½ S., R. 32½ E.; Skull Creek Butte quadrangle.

A—0 to 5 inches; yellowish brown (10YR 5/4) sand, brown (10YR 4/3) moist; single

grain; loose, nonsticky and nonplastic; many very fine and fine roots; many very fine interstitial pores; neutral (pH 7.0); gradual wavy boundary.
C1—5 to 13 inches; yellowish brown (10YR 5/4) sand, brown (10YR 4/3) moist; single grain; loose, nonsticky and nonplastic; common fine roots; many very fine interstitial pores; neutral (pH 7.2); gradual wavy boundary.
C2—13 to 60 inches; light yellowish brown (10YR 6/4) sand, yellowish brown (10YR 5/4) moist; single grain; loose, nonsticky and nonplastic; few fine roots; many very fine interstitial pores; slightly alkaline (pH 7.6).

Bedrock is at a depth of more than 60 inches. The particle-size control section averages 3 to 10 percent clay. The profile is neutral or slightly alkaline.

The C horizon is loamy sand or sand.

Torriorthents

Torriorthents consists of very shallow and shallow, well drained soils that formed in residuum derived from diatomaceous earth and tuffaceous sedimentary rock. The soils are on hills. Slope is 2 to 40 percent. Elevation is 3,400 to 4,100 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Torriorthents

Representative pedon of Torriorthents in an area of Torriorthents-Gumble complex, 2 to 35 percent slopes; about 500 feet south and 1,150 feet east of the northwest corner of sec. 7, T. 21 S., R. 35 E.; Drewsey quadrangle.

A—0 to 7 inches; light brownish gray (10YR 6/2) extremely gravelly loam, dark grayish brown (10YR 4/2) moist; weak very fine granular structure; soft, very friable, nonsticky and nonplastic; 65 percent gravel and 15 percent cobbles; slightly alkaline (pH 7.4); abrupt smooth boundary.
Cr—7 inches; diatomaceous earth.

Thickness of the solum and depth to bedrock are 4 to 14 inches.

The A horizon is loam, gravelly clay loam, very gravelly sandy loam, silty clay loam, very gravelly sandy loam, or extremely gravelly loam. It is 10 to 80 percent rock fragments.

Tuffo Series

The Tuffo series consists of very shallow and shallow, somewhat excessively drained soils that formed in colluvium and residuum derived from ashflow tuff. The soils are on hills. Slope is 5 to 30 percent. Elevation is 4,200 to 5,000 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Ashy, nonacid, mesic, shallow Vitrandic Torriorthents

Typical pedon of Tuffo fine sandy loam in an area of Vining-Tuffo complex, 5 to 30 percent slopes; about 1,400 feet south and 2,100 feet east of the northwest corner of sec. 22, T. 41 S., R. 33 E.; Oregon End Table quadrangle.

A1—0 to 2 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; weak medium subangular blocky structure; soft, very friable, nonsticky and nonplastic; few very fine, fine, and medium roots; common very fine and fine irregular and tubular pores; 5 percent gravel; slightly alkaline (pH 7.6); clear smooth boundary.
A2—2 to 7 inches; light brownish gray (10YR 6/2) fine sandy loam, brown (10YR 4/3)

moist; massive; soft, very friable, nonsticky and nonplastic; few fine and medium roots; common very fine and fine irregular and tubular pores; slightly alkaline (pH 7.4); abrupt smooth boundary.
Cr—7 inches; weathered ashflow tuff.

Depth to bedrock is 7 to 14 inches. The particle-size control section averages 0 to 5 percent rock fragments, mainly gravel, and 5 to 15 percent clay.

The A horizon has value of 6 or 7 dry and 4 moist, and it has chroma of 3 dry or moist. The lower part is fine sandy loam or sandy loam.

Tumtum Series

The Tumtum series consists of soils that are shallow to a duripan and are well drained. The soils formed in alluvium. They are on old lake terraces. Slope is 2 to 15 percent. Elevation is 3,400 to 5,200 feet. The mean annual precipitation is 7 to 11 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Loamy, mixed, mesic, shallow Typic Argidurids

Typical pedon of Tumtum cobbly loam, 4 to 15 percent slopes, about 2,100 feet north and 1,400 feet east of the southwest corner of sec. 11, T. 40 S., R. 36 E.; Windy Point quadrangle.

A—0 to 2 inches; light brownish gray (10YR 6/2) cobbly loam, dark grayish brown (10YR 4/2) moist; weak medium platy structure; slightly hard, friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine vesicular pores; 15 percent gravel and 15 percent cobbles; moderately alkaline (pH 7.9); clear wavy boundary.
Bt—2 to 12 inches; yellowish brown (10YR 5/4) clay loam, dark yellowish brown (10YR 4/4) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and moderately plastic; common very fine and fine roots; many very fine and fine irregular pores; common faint clay films on faces of peds; 5 percent gravel; moderately alkaline (pH 8.4); abrupt wavy boundary.
Bkqm—12 to 25 inches; very pale brown (10YR 7/4) indurated duripan, dark yellowish brown (10YR 4/6) moist; massive; extremely hard, very rigid; slightly effervescent; 10 percent gravel; clear wavy boundary.
2Ck—25 to 60 inches; light yellowish brown (10YR 6/4) gravelly sandy loam, dark yellowish brown (10YR 3/6) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; many very fine irregular pores; violently effervescent with disseminated carbonates; 30 percent gravel; moderately alkaline (pH 8.4).

Thickness of the solum and depth to the duripan are 9 to 18 inches. Bedrock is at a depth of more than 60 inches. The particle-size control section averages 5 to 15 percent rock fragments, mainly gravel, and 25 to 35 percent clay.

The A horizon is 15 to 35 percent rock fragments and 20 to 27 percent clay. It is slightly alkaline or moderately alkaline.

The Bt horizon is 5 to 15 percent rock fragments and 27 to 35 percent clay. It is slightly alkaline or moderately alkaline.

The Bkqm horizon is 8 to 18 inches thick.

The 2Ck horizon is gravelly sandy loam or very gravelly sandy loam. It is 15 to 45 percent rock fragments and 5 to 15 percent clay.

Turpin Series

The Turpin series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 1 percent. Elevation

is 4,400 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Sodic Xeric Haplocambids

Typical pedon of Turpin sandy clay loam, 0 to 1 percent slopes, about 1,400 feet north and 200 feet east of the southwest corner of sec. 22, T. 32 S., R. 27 E.; Steamboat Point quadrangle.

A1—0 to 4 inches; pale brown (10YR 6/3) sandy clay loam, brown (10YR 4/3) moist; weak thick platy structure parting to moderate thin platy; soft, very friable, slightly sticky and slightly plastic; few very fine and fine roots; common very fine, fine, and medium vesicular pores; moderately alkaline (pH 8.2); abrupt smooth boundary.

A2—4 to 8 inches; light gray (10YR 7/2) silt loam, grayish brown (10YR 5/2) moist; weak thick platy structure parting to moderate medium platy; slightly hard, friable, slightly sticky and slightly plastic; few very fine, fine, and medium roots; common very fine and fine and few medium vesicular pores; strongly alkaline (pH 8.6); abrupt smooth boundary.

Bn—8 to 13 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium angular blocky structure parting to moderate fine angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine, fine, and medium irregular and tubular pores; slightly effervescent with disseminated carbonates; very strongly alkaline (pH 9.1); clear smooth boundary.

Bkn1—13 to 25 inches; light brownish gray (10YR 6/2) clay loam, dark grayish brown (10YR 4/2) moist; moderate medium prismatic structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; common very fine and few fine and medium roots; common very fine and few fine and medium irregular and tubular pores; strongly effervescent with disseminated carbonates and few fine segregated carbonates occurring as filaments; very strongly alkaline (pH 9.2); clear smooth boundary.

Bkn2—25 to 38 inches; pale brown (10YR 6/3) clay loam, brown (10YR 4/3) moist; strong medium prismatic structure parting to moderate medium angular blocky; hard, firm, moderately sticky and moderately plastic; few very fine and fine roots; few very fine and fine irregular and tubular pores; strongly effervescent with disseminated carbonates; very strongly alkaline (pH 9.2); gradual wavy boundary.

BCn—38 to 48 inches; light gray (10YR 7/2) clay loam, brown (10YR 5/3) moist; weak medium prismatic structure parting to moderate medium angular blocky; hard, firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine and fine irregular and tubular pores; very strongly alkaline (pH 9.0); gradual wavy boundary.

C—48 to 60 inches; very pale brown (10YR 7/3) clay loam, brown (10YR 5/3) moist; strong medium angular blocky structure; extremely hard, very firm, slightly sticky and slightly plastic; few very fine and fine roots; few very fine tubular pores; semiconsolidated lacustrine sediment; very strongly alkaline (pH 9.0).

Bedrock is at a depth of more than 60 inches. The solum is 40 to 60 inches thick. Occasional ponding occurs late in winter and in spring. A high water table is present late in winter and in spring. The particle-size control section averages 20 to 35 percent clay.

The A horizon is 20 to 30 percent clay. It is moderately alkaline or strongly alkaline. The sodium adsorption ratio is 5 to 50. Electrical conductivity is 2 to 8 millimhos per centimeter.

The Bn and Bkn horizons are loam or clay loam. They are 20 to 35 percent clay. The sodium adsorption ratio is 200 to 300. Electrical conductivity is 8 to 16 millimhos per centimeter.

The 2C horizon is loam or clay loam with 20 to 35 percent clay. The sodium adsorption ratio is 200 to 300. Electrical conductivity is 8 to 16 millimhos per centimeter.

Vanwyper Series

The Vanwyper series consists of moderately deep, well drained soils that formed in colluvium and residuum derived from andesite. The soils are on mountains. Slope is 45 to 70 percent. Elevation is 5,000 to 6,000 feet. The mean annual precipitation is about 8 to 10 inches, and the mean annual air temperature is about 45 to 47 degrees F.

Taxonomic classification: Clayey-skeletal, montmorillonitic, mesic Xeric Haplargids

Typical pedon of Vanwyper extremely stony silty clay loam in an area of Vanwyper-Rock outcrop complex, 45 to 80 percent north slopes; about 2,400 feet north and 1,100 feet east of the southwest corner of sec. 24, T. 38 S., R. 38 E.; Whitehorse Ranch quadrangle.

A—0 to 3 inches; light brownish gray (10YR 6/2) extremely stony silty clay loam, dark grayish brown (10YR 4/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, moderately sticky and moderately plastic; many very fine, fine, medium, and coarse roots; many very fine and fine tubular pores; 35 percent stones, 30 percent cobbles, and 20 percent gravel; neutral (pH 7.2); abrupt wavy boundary.

Bt1—3 to 15 inches; brown (10YR 4/3) cobbly clay, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, friable, very sticky and very plastic; many very fine, fine, medium, and coarse roots; many very fine and fine tubular pores; few faint clay films on faces of peds; 5 percent stones, 15 percent cobbles, and 10 percent gravel; slightly alkaline (pH 7.4); clear wavy boundary.

Bt2—15 to 24 inches; brown (10YR 5/3) very gravelly clay loam, dark brown (10YR 3/3) moist; massive; soft, very friable, moderately sticky and moderately plastic; common very fine, fine, medium, and coarse roots; many very fine and fine irregular and tubular pores; few faint clay films on rock fragments and lining pores; 5 percent stones, 5 percent cobbles, and 35 percent gravel; slightly alkaline (pH 7.4); diffuse irregular boundary.

R—24 inches; fractured andesite.

Depth to bedrock ranges from 20 to 40 inches. The particle-size control section averages 35 to 50 percent rock fragments and 35 to 55 percent clay.

The A horizon has value of 6 or 7 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry.

The Bt horizon has value of 4 to 6 dry and 3 or 4 moist, and it has chroma of 3 moist or dry. It is cobbly clay or very cobbly clay over very cobbly clay loam or very gravelly clay loam. It is 30 to 55 percent clay and 25 to 55 percent rock fragments. It is neutral or slightly alkaline.

Vergas Series

The Vergas series consists of very deep, well drained soils that formed in alluvium. The soils are on alluvial fans and in depressions on plateaus. Slope is 0 to 8 percent. Elevation is 4,100 to 6,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-loamy over sandy or sandy-skeletal, mixed, frigid Durinodic Xeric Haplargids

Typical pedon of Vergas gravelly loam, 0 to 3 percent slopes, about 2,500 feet north and 2,600 feet east of the southwest corner of sec. 34, T. 38 S., R. 30 E.; Acty Mountain NW quadrangle.

A—0 to 6 inches; light brownish gray (10YR 6/2) gravelly loam, brown (10YR 4/3) moist; moderate coarse granular structure parting to moderate medium granular; soft, very friable, slightly sticky and slightly plastic; common very fine and fine roots; many very fine and fine irregular pores; 20 percent gravel; neutral (pH 6.8); clear smooth boundary.

Bt—6 to 14 inches; yellowish brown (10YR 5/4) gravelly sandy clay loam, dark yellowish brown (10YR 4/4) moist; weak fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common medium roots; many very fine irregular pores; few faint clay films on faces of peds; 20 percent gravel; neutral (pH 7.2); clear wavy boundary.

2Bkq—14 to 20 inches; brownish yellow (10YR 6/6) gravelly loamy sand, dark yellowish brown (10YR 3/6) moist; strong medium platy structure; hard, firm and brittle; few fine and common medium roots; slightly effervescent with segregated carbonates between plates; 25 percent gravel; moderately alkaline (pH 8.0); gradual wavy boundary.

2Ck—20 to 62 inches; light yellowish brown (10YR 6/4) extremely gravelly coarse sand, dark yellowish brown (10YR 3/4) moist; single grain; loose, nonsticky and nonplastic; many fine irregular pores; slightly effervescent with disseminated carbonates; 65 percent gravel and 5 percent cobbles; moderately alkaline (pH 8.0).

Bedrock is at a depth of more than 60 inches. The hard, firm and brittle layer is at a depth of 14 to 35 inches. Calcium carbonate is at a depth of 10 to 60 inches. The upper part of the particle-size control section averages 5 to 25 percent rock fragments, mainly gravel, and 20 to 35 percent clay. The lower part averages 35 to 60 percent gravel and 2 to 10 percent clay.

The A horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 or 3 moist or dry. It is fine sandy loam or gravelly loam. It is 0 to 35 percent rock fragments and 12 to 27 percent clay.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is sandy clay loam, clay loam, or gravelly sandy clay loam. It is 0 to 25 percent rock fragments and 20 to 35 percent clay.

The 2Bkq horizon is gravelly loamy sand or very gravelly loamy sand. It is 15 to 50 percent rock fragments and 5 to 10 percent clay. It is slightly alkaline or moderately alkaline.

The 2Ck horizon is very gravelly coarse sand or extremely gravelly coarse sand. It is 35 to 70 percent rock fragments and 2 to 10 percent clay. It is slightly alkaline or moderately alkaline.

Vil Series

The Vil series consists of soils that are shallow to a duripan and are well drained. The soils formed in alluvium. They are on old alluvial fans and stream terraces. Slope is 2 to 20 percent. Elevation is 4,000 to 5,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Loamy, mixed, frigid, shallow Argiduridic Durixerolls

Typical pedon of Vil silt loam, 2 to 20 percent slopes, about 250 feet north and 2,450 feet west of the southeast corner of sec. 16, T. 25 S., R. 24 E.; Hay Lake quadrangle.

A1—0 to 6 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; weak fine granular structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; 5 percent gravel; slightly alkaline (pH 7.6); gradual smooth boundary.

A2—6 to 9 inches; brown (10YR 5/3) loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; 10 percent fine gravel; slightly alkaline (pH 7.6); clear smooth boundary.

Bt1—9 to 13 inches; pale brown (10YR 6/3) clay loam, dark brown (10YR 3/3) moist; weak fine and medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; few faint clay films on faces of peds; 10 percent fine gravel; slightly alkaline (pH 7.4); clear smooth boundary.

Bt2—13 to 16 inches; light yellowish brown (10YR 6/4) gravelly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium and fine subangular blocky structure; slightly hard, firm, slightly sticky and slightly plastic; common fine roots; common very fine tubular pores; common faint clay films on faces of peds; 20 percent fine gravel; slightly alkaline (pH 7.4); abrupt wavy boundary.

2Bqm—16 to 37 inches; light yellowish brown (10YR 6/4) gravelly indurated duripan, dark yellowish brown (10YR 4/4) moist; massive; extremely hard, extremely firm and brittle; coatings of opal on gravel; abrupt wavy boundary.

2Bq—37 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, nonsticky and nonplastic; weak discontinuous cementation; 45 percent gravel; slightly effervescent; moderately alkaline (pH 7.9).

Thickness of the solum and depth to the duripan are 15 to 20 inches. The duripan is 15 to 30 inches thick. The solum is 10 to 30 percent rock fragments, commonly gravel.

The A horizon has value of 4 or 5 dry and 3 moist, and it has chroma of 3 moist or dry.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 3 or 4 moist or dry. It is clay loam, loam, gravelly clay loam, or gravelly loam with 20 to 30 percent clay.

Vining Series

The Vining series consists of moderately deep, well drained soils that formed in eolian sand derived from tuffaceous sedimentary rock. The soils are on hills. Slope is 2 to 30 percent. Elevation is 4,000 to 5,000 feet. The mean annual precipitation is 8 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Coarse-loamy, mixed, mesic Xeric Haplocambids

Typical pedon of Vining loamy sand in an area of Vining-Tuffo complex, 5 to 30 percent slopes; about 2,100 feet north and 1,800 feet east of the southwest corner of sec. 22, T. 41 S., R. 33 E.; Bog Hot Springs quadrangle.

A—0 to 2 inches; light brownish gray (10YR 6/2) loamy sand, brown (10YR 4/3) moist; weak fine granular structure; soft, very friable, nonsticky and nonplastic; common very fine, fine, medium, and coarse roots; common fine irregular pores; 10 percent ash; 10 percent gravel; neutral (pH 6.8); abrupt wavy boundary.

Bq1—2 to 13 inches; light yellowish brown (10YR 6/4) sandy loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure; soft, very friable, slightly sticky and nonplastic; many very fine, fine, medium, and coarse roots; many very fine irregular pores; 10 percent ash; 10 percent durinodes; neutral (pH 7.0); gradual wavy boundary.
Bq2—13 to 29 inches; pale brown (10YR 6/3) sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; many very fine, fine, medium, and coarse roots; many very fine irregular pores; 10 percent ash; 10 percent durinodes; slightly effervescent with disseminated carbonates; slightly alkaline (pH 7.4); clear wavy boundary.
R—29 inches; tuffaceous sedimentary rock.

Depth to bedrock is 20 to 40 inches. Depth to carbonates is 13 to 32 inches. The particle-size control section averages 0 to 15 percent rock fragments, mainly gravel, and 10 to 18 percent clay. The profile is neutral or slightly alkaline.

The A horizon has value of 6 or 7 dry and 3 to 5 moist, and it has chroma of 2 or 3 moist or dry. It is loamy sand or loam. It is 0 to 15 percent rock fragments and 5 to 20 percent clay.

The Bq horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 3 or 4 moist or dry. It is sandy loam or loam. It is 0 to 15 percent rock fragments and 10 to 18 percent clay.

Vitale Series

The Vitale series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt, welded tuff, rhyolite, and andesite. The soils are on hills and plateaus. Slope is 2 to 60 percent. Elevation is 3,900 to 6,100 feet. The mean annual precipitation is 12 to 16 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Typic Argixerolls

Typical pedon of Vitale very cobbly loam in an area of Vitale-Merlin complex, 2 to 20 percent slopes; about 1,000 feet south and 1,800 feet east of the northwest corner of sec. 20, T. 21 S., R. 26 E.; Camp Curry Springs quadrangle.

A1—0 to 3 inches; brown (10YR 5/3) very cobbly loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; few very fine and common fine and medium irregular pores; 15 percent gravel, 15 percent cobbles, and 5 percent stones; neutral (pH 7.2); clear smooth boundary.
A2—3 to 12 inches; brown (10YR 5/3) cobbly loam, very dark grayish brown (10YR 3/2) moist; weak medium subangular blocky structure parting to moderate medium granular; slightly hard, very friable, slightly sticky and slightly plastic; common very fine, fine, and medium and few coarse roots; common very fine, fine, and medium irregular pores; 10 percent gravel and 10 percent cobbles; neutral (pH 7.3); clear wavy boundary.
Bt1—12 to 21 inches; light yellowish brown (10YR 6/4) very cobbly clay loam, dark yellowish brown (10YR 4/4) moist; moderate medium subangular blocky structure parting to strong fine angular blocky; slightly hard, firm, moderately sticky and moderately plastic; common fine and few very fine, medium, and coarse roots; few very fine, fine, and medium irregular pores; common distinct clay films on faces of peds; 15 percent gravel, 25 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.5); clear wavy boundary.
Bt2—21 to 26 inches; pale brown (10YR 6/3) very cobbly sandy clay loam, brown

(10YR 4/3) moist; moderate medium subangular blocky structure parting to strong fine angular blocky; slightly hard, firm, moderately sticky and moderately plastic; few very fine, fine, and medium roots; few very fine and common fine and medium irregular pores; common distinct clay films on faces of peds; 15 percent gravel, 20 percent cobbles, and 10 percent stones; slightly alkaline (pH 7.6); clear wavy boundary.

R—26 inches; basalt.

The mollic epipedon is 10 to 16 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 60 percent rock fragments, mainly cobbles, and 20 to 35 percent clay.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of 2 or 3 moist or dry. It is 15 to 50 percent rock fragments and 18 to 27 percent clay. It is slightly acid or neutral. The upper part is gravelly loam, very cobbly loam, or very stony loam, and the lower part is gravelly loam, cobbly loam, or very cobbly loam.

The Bt horizon has value of 5 or 6 dry and 3 or 4 moist, and it has chroma of 2 to 4 moist or dry. It is very gravelly clay loam, very cobbly clay loam, or very cobbly sandy clay loam. It is 30 to 60 percent rock fragments and 20 to 35 percent clay. It is neutral or slightly alkaline.

Voltage Series

The Voltage series consists of very deep, well drained soils that formed in lacustrine sediment. The soils are on lake terraces. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Coarse-loamy, mixed, frigid Xeric Haplocalcids

Typical pedon of Voltage silt loam in an area of Voltage-Crowcamp complex, 0 to 2 percent slopes; about 300 feet south and 500 feet east of the northwest corner of sec. 25, T. 23 S., R. 32 E.; Ninemile Slough quadrangle.

A—0 to 4 inches; light brownish gray (10YR 6/2) silt loam, very dark brown (10YR 2/2) moist; weak thin platy structure; soft, very friable, nonsticky and nonplastic; many fine roots; many fine vesicular pores; strongly effervescent; electrical conductivity is 3.6 millimhos per centimeter; sodium adsorption ratio is 1; 5 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); abrupt smooth boundary.

Bk1—4 to 11 inches; pale brown (10YR 6/3) silt loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; many fine vesicular pores; strongly effervescent; electrical conductivity is 5 millimhos per centimeter; sodium adsorption ratio is 10; 18 percent calcium carbonate equivalent; moderately alkaline (pH 8.2); clear smooth boundary.

Bk2—11 to 23 inches; light brownish gray (10YR 6/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate fine subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; strongly effervescent; moderately alkaline (pH 8.2); abrupt smooth boundary.

2Bk3—23 to 28 inches; light gray (10YR 7/2) loam, dark grayish brown (10YR 4/2) moist; moderate fine and medium subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; few fine roots; many fine and very fine tubular pores; strongly effervescent; moderately alkaline (pH 8.2); abrupt wavy boundary.

2Bk4—28 to 38 inches; light gray (10YR 7/2) fine sandy loam, grayish brown (10YR 5/2) moist; weak fine subangular blocky structure; slightly hard, friable, nonsticky and nonplastic; many fine roots; strongly effervescent; electrical conductivity is

6.3 millimhos per centimeter; sodium adsorption ratio is 7; 25 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear smooth boundary.

2C—38 to 64 inches; pale brown (10YR 6/3) fine sandy loam, brown (10YR 4/3) moist; massive; soft, very friable, nonsticky and nonplastic; few fine roots; slightly effervescent to a depth of 54 inches; electrical conductivity is 1 millimho per centimeter; sodium adsorption ratio is 7; 6 percent calcium carbonate equivalent; strongly alkaline (pH 8.6).

Bedrock is at a depth of more than 60 inches. The particle-size control section is 10 to 18 percent clay. The calcic horizon is at a depth of 3 to 10 inches. It has a calcium carbonate equivalent of 15 to 30 percent.

The A horizon has value of 6 dry and 2 to 4 moist, and it has chroma of 2 or 3 moist or dry. It is silt loam or silty clay loam. The sodium adsorption ratio is 1 to 5.

The B horizon has value of 6 or 7 dry and 3 or 4 moist. It is silt loam, loam, or fine sandy loam. The sodium adsorption ratio is 5 to 10.

The C horizon has value of 6 or 7 dry and 4 or 5 moist, and it has chroma of 2 or 3 moist or dry. It is loam, silt loam, or fine sandy loam. The sodium adsorption ratio is 5 to 10. The horizon is moderately alkaline or strongly alkaline.

Wagontire Series

The Wagontire series consists of soils that are shallow to a duripan and are well drained. The soils formed in alluvium. They are on old alluvial fans and stream terraces. Slope is 2 to 20 percent. Elevation is 4,000 to 5,000 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Clayey, montmorillonitic, frigid, shallow Argiduridic Durixerolls

Typical pedon of Wagontire gravelly clay loam, 2 to 20 percent slopes, about 300 feet south and 300 feet east of the northwest corner of sec. 33, T. 25 S., R. 24 E.; Wagontire Mountain East quadrangle.

A—0 to 2 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine granular structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; 25 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

AB—2 to 5 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; many fine roots; 25 percent gravel; neutral (pH 7.2); abrupt smooth boundary.

Bt1—5 to 11 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common fine roots; 25 percent gravel; neutral (pH 7.0); clear smooth boundary.

Bt2—11 to 15 inches; brown (10YR 5/3) gravelly clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, firm, moderately sticky and moderately plastic; common fine roots; common distinct clay films; 5 percent cobbles and 25 percent gravel; slightly alkaline (pH 7.6); abrupt wavy boundary.

Bqm—15 to 40 inches; light yellowish brown (10YR 6/4) indurated duripan, dark yellowish brown (10YR 4/4) moist; massive; coatings of opal on rock fragments; abrupt wavy boundary.

Bq—40 to 60 inches; light yellowish brown (10YR 6/4) very gravelly sandy loam, dark yellowish brown (10YR 4/4) moist; massive; slightly hard, firm, nonsticky and

nonplastic; weak discontinuous cementation; 45 percent gravel; slightly effervescent; slightly alkaline (pH 7.8).

Depth to bedrock is more than 60 inches. Depth to the duripan is 14 to 20 inches.

The A horizon has chroma of 2 or 3. It has weak or moderate fine granular or subangular blocky structure.

The Bt horizon has hue of 10YR or 7.5YR. It is gravelly clay loam or gravelly clay. It is 15 to 35 percent rock fragments and 35 to 50 percent clay.

The Bqm horizon is 15 to 30 inches thick.

The Bq horizon is very gravelly loam or very gravelly sandy loam. It is 10 to 20 percent clay and 35 to 50 percent rock fragments, mainly gravel.

Waspo Series

The Waspo series consists of moderately deep, well drained soils that formed in residuum derived from siltstone. The soils are on hills. Slope is 2 to 8 percent. Elevation is 3,400 to 4,000 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine, montmorillonitic, mesic Aridic Haploxererts

Typical pedon of Waspo clay in an area of Waspo-Poall complex, 2 to 8 percent slopes; about 1,900 feet south and 3,500 feet east of the northwest corner of sec. 23, T. 21 S., R. 35 E.; Bartlett Mountain quadrangle.

A—0 to 3 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate medium subangular blocky structure parting to strong fine granular; soft, very friable, moderately sticky and moderately plastic; common very fine and few fine roots; many fine vesicular pores; 0.50- to 0.75-inch-wide cracks; slightly alkaline (pH 7.8); clear smooth boundary.

Bss1—3 to 12 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate fine prismatic structure parting to strong fine and medium angular blocky; very hard, very firm, very sticky and very plastic; common very fine and few fine roots; few fine tubular pores; 0.5-inch-wide cracks; common intersecting slickensides; slightly effervescent with disseminated carbonates; slightly alkaline (pH 7.8); clear smooth boundary.

Bss2—12 to 25 inches; light olive brown (2.5Y 5/4) clay, olive brown (2.5Y 4/4) moist; moderate coarse prismatic structure; very hard, very firm, very sticky and very plastic; few very fine and fine roots; few fine tubular pores; 0.25-inch-wide cracks; many intersecting slickensides; slightly effervescent with disseminated carbonates; 10 percent soft siltstone paragravel; moderately alkaline (pH 8.0); clear wavy boundary.

2Cry—25 inches; variegated moderately cemented siltstone; few fine roots; common prominent carbonate and gypsum concentrations; strongly effervescent with disseminated carbonates.

Thickness of the solum and depth to bedrock are 20 to 40 inches. Calcium carbonate is at a depth of 3 to 40 inches. The particle-size control section averages 60 to 75 percent clay. The profile is slightly alkaline or moderately alkaline. It has hue of 10YR or 2.5Y.

The A horizon is 50 to 70 percent clay.

The B horizon is clay or silty clay with 60 to 75 percent clay.

The Cr horizon is 20 to 30 percent gypsum.

The Waspo soils in this survey area are in the very-fine family particle-size class; therefore, they are a taxadjunct to the Waspo series.

Welch Series

The Welch series consists of very deep, poorly drained soils that formed in alluvium. The soils are on stream terraces and in mountain valleys. Slope is 0 to 5 percent. Elevation is 4,500 to 9,000 feet. The mean annual precipitation is 12 to 35 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Fine-loamy, mixed, frigid Cumulic Endoaquolls

Typical pedon of Welch loam in an area of Welch-Roschene-Cumulic Haploxerolls complex, 0 to 3 percent slopes; about 800 feet south and 50 feet east of the northwest corner of sec. 27, T. 21 S., R. 26 E.; Dry Mountain quadrangle.

A1—0 to 5 inches; grayish brown (10YR 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak fine subangular blocky structure parting to moderate fine granular; soft, very friable, slightly sticky and slightly plastic; common fine and many very fine roots; many very fine interstitial pores; common distinct iron concentrations that are brown (10YR 4/3) when moist; neutral (pH 7.0); clear smooth boundary.

A2—5 to 14 inches; gray (10YR 5/1) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; few fine and common very fine roots; common very fine tubular pores; common lenses of sand; common distinct iron concentrations that are brown (10YR 4/3) when moist; neutral (pH 6.8); clear smooth boundary.

A3—14 to 34 inches; dark gray (10YR 4/1) silt loam, very dark gray (10YR 3/1) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; few very fine roots; common very fine tubular pores; few faint iron concentrations that are brown (10YR 4/3) when moist; neutral (pH 6.8); gradual smooth boundary.

C—34 to 60 inches; light brownish gray (10YR 6/2) loam, very dark grayish brown (10YR 3/2) moist; massive; soft, very friable, slightly sticky and slightly plastic; few fine and very fine roots; few fine and common very fine tubular pores; common distinct iron concentrations that are brown (10YR 4/3) when moist; neutral (pH 7.2).

The mollic epipedon is 24 to 40 inches thick. Bedrock is at a depth of more than 60 inches. Frequent flooding or ponding occurs in spring. A high water table is present in winter, spring, and summer. The particle-size control section averages 0 to 15 percent rock fragments, mainly fine gravel, and 20 to 35 percent clay.

The upper part of the A horizon is silt loam or loam. It is 0 to 5 percent rock fragments and 15 to 20 percent clay. It is slightly acid or neutral.

The lower part of the A horizon and the C horizon are stratified sandy loam to silty clay loam. They are 0 to 15 percent rock fragments and 20 to 35 percent clay. They are slightly acid to slightly alkaline.

Wenas Series

The Wenas series consists of very deep, poorly drained soils that formed in alluvium. The soils are on stream terraces. Slope is 0 to 3 percent. Elevation is 3,500 to 3,900 feet. The mean annual precipitation is 9 to 12 inches, and the mean annual air temperature is 45 to 49 degrees F.

Taxonomic classification: Fine-loamy, mixed, mesic Cumulic Endoaquolls

Typical pedon of Wenas clay loam in an area of Wenas-Loupence-Cumulic

Haploxerolls complex, 0 to 3 percent slopes; about 1,200 feet north and 2,800 feet west of the southeast corner of sec. 25, T. 19 S., R. 33 E.; Moffit Table quadrangle.

Ap—0 to 10 inches; dark grayish brown (10YR 4/2) clay loam, very dark grayish brown (10YR 3/2) moist; strong medium and fine granular structure; hard, firm, very sticky and very plastic; many very fine and fine roots; many very fine and fine irregular pores and many very fine tubular pores; slightly effervescent with disseminated carbonates; slightly alkaline (pH 7.8); gradual smooth boundary.

Bg1—10 to 21 inches; grayish brown (10YR 5/2) fine sandy loam, very dark grayish brown (10YR 3/2) moist; moderate coarse, medium, and fine prismatic structure parting to moderate medium subangular blocky; slightly hard, friable, moderately sticky and slightly plastic; common very fine and fine roots; many very fine and common fine tubular pores; common fine faint iron concentrations that are dark yellowish brown (10YR 4/4) when moist; common fine faint manganese concentrations that are very dark grayish brown (10YR 3/2) when moist; discontinuous lens of sand at a depth of 21 inches; slightly alkaline (pH 7.6); clear smooth boundary.

Bg2—21 to 34 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (10YR 3/2) moist; moderate coarse prismatic structure parting to moderate coarse and medium subangular blocky; hard, friable, moderately sticky and moderately plastic; common very fine and fine roots; common very fine and fine tubular pores; common fine distinct iron concentrations that are dark brown (7.5YR 4/4) when moist; common fine faint manganese concentrations that are black (10YR 2/1) when moist; slightly alkaline (pH 7.6); diffuse smooth boundary.

Bg3—34 to 53 inches; grayish brown (2.5Y 5/2) loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and fine tubular pores; few fine distinct iron concentrations that are strong brown (7.5YR 4/6) when moist; few fine faint manganese concentrations that are black (10YR 2/1) when moist; slightly alkaline (pH 7.6); clear smooth boundary.

BCg—53 to 63 inches; grayish brown (2.5Y 5/2) gravelly loam, very dark grayish brown (10YR 3/2) moist; weak coarse subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few very fine and fine roots; common very fine and few fine tubular pores; common fine distinct iron concentrations that are dark brown (7.5YR 3/3) when moist; 20 percent gravel; slightly alkaline (pH 7.5); clear smooth boundary.

2C—63 to 67 inches; grayish brown (2.5Y 5/2) very gravelly loamy sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine roots; 5 percent cobbles and 40 percent gravel; slightly alkaline (pH 7.5).

The mollic epipedon is 24 to 35 inches thick. Bedrock is at a depth of more than 60 inches. Frequent flooding occurs in spring. A high water table is present late in winter, in spring, and early in summer. The particle-size control section averages 0 to 15 percent rock fragments, mainly gravel, and 18 to 27 percent clay. The profile is neutral or slightly alkaline.

The Ap horizon has hue of 10YR or 2.5Y.

The Bg horizon is 18 to 27 percent clay and 0 to 25 percent rock fragments.

The 2C horizon is 35 to 50 percent rock fragments.

Westbutte Series

The Westbutte series consists of moderately deep, well drained soils that formed in residuum and colluvium derived from basalt, andesite, rhyolite, and welded tuff. The soils are on mountains, hills, and plateaus. Slope is 2 to 65 percent. Elevation is 4,000

to 7,000 feet. The mean annual precipitation is 12 to 18 inches, and the mean annual air temperature is 40 to 45 degrees F.

Taxonomic classification: Loamy-skeletal, mixed, frigid Pachic Haploxerolls

Typical pedon of Westbutte extremely stony loam in an area of Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes; about 400 feet south and 600 feet east of the northwest corner of sec. 19, T. 41 S., R. 35 E.; Van Horn Basin quadrangle.

A—0 to 12 inches; dark grayish brown (10YR 4/2) extremely stony loam, very dark grayish brown (10YR 3/2) moist; weak fine granular structure; soft, very friable, slightly sticky and slightly plastic; many very fine, fine, medium, and coarse roots; many fine and medium irregular pores; 5 percent gravel, 25 percent cobbles, and 30 percent stones; neutral (pH 6.7); gradual wavy boundary.

Bw—12 to 24 inches; brown (10YR 4/3) very cobbly loam, dark brown (10YR 3/3) moist; weak medium subangular blocky structure; soft, very friable, slightly sticky and slightly plastic; common very fine, fine, medium, and coarse roots; many fine and medium irregular pores; 10 percent gravel, 20 percent cobbles, and 10 percent stones; neutral (pH 6.7); abrupt broken boundary.

R—24 inches; basalt.

The mollic epipedon is 20 to 34 inches thick. Thickness of the solum and depth to bedrock are 20 to 40 inches. The particle-size control section averages 35 to 70 percent rock fragments, mainly cobbles, and 18 to 30 percent clay.

The A horizon has value of 3 to 5 dry and 2 or 3 moist, and it has chroma of 1 or 2 moist or dry. It is very cobbly loam, very stony loam, or extremely stony loam. It is 20 to 75 percent rock fragments and 15 to 27 percent clay.

The Bw horizon has hue of 7.5YR or 10YR, value of 4 or 5 dry and 2 or 3 moist, and chroma of 2 or 3 moist or dry. It is very cobbly loam, very cobbly clay loam, or very stony clay loam. It is 35 to 70 percent rock fragments and 18 to 30 percent clay. It is neutral or slightly alkaline.

Widowspring Series

The Widowspring series consists of very deep, moderately well drained soils that formed in lacustrine sediment. The soils are on lake plains. Slope is 0 to 2 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed, frigid Cumulic Haploxerolls

Typical pedon of Widowspring silt loam, 0 to 2 percent slopes, about 1,100 feet north and 400 feet east of the southwest corner of sec. 26, T. 22 S., R. 30 E.; Poison Creek quadrangle.

A1—0 to 7 inches; dark grayish brown (10YR 4/2) silt loam, very dark brown (10YR 2/2) moist; moderate fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; many fine roots; slightly alkaline (pH 7.4); abrupt smooth boundary.

A2—7 to 22 inches; grayish brown (10YR 5/2) silt loam, very dark grayish brown (10YR 3/2) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; many fine roots; common very fine tubular pores; slightly alkaline (pH 7.4); clear wavy boundary.

AB—22 to 28 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; slightly hard, friable, slightly sticky

and slightly plastic; common fine roots; many very fine tubular pores; neutral (pH 7.2); gradual wavy boundary.

Bw—28 to 43 inches; brown (10YR 5/3) silt loam, dark brown (10YR 3/3) moist; moderate coarse subangular blocky structure; slightly hard, friable, slightly sticky and slightly plastic; common fine roots; many very fine tubular pores; neutral (pH 7.0); clear wavy boundary.

2C—43 to 63 inches; yellowish brown (10YR 5/4) loam, dark yellowish brown (10YR 4/3) moist; massive; slightly hard, very friable, slightly sticky and slightly plastic; few fine roots; many distinct iron concentrations that are reddish brown (5YR 4/4) when moist; neutral (pH 7.0).

The solum and mollic epipedon are 20 to 45 inches thick. Bedrock is at a depth of more than 60 inches. Rare ponding occurs in spring. A high water table is present throughout the year. The particle-size control section is silt loam or silty clay loam with 20 to 35 percent clay. The profile is neutral or slightly alkaline.

The A horizon has value of 4 or 5 dry and 2 or 3 moist, and it has chroma of dominantly 2 moist or dry, but the lower part may have chroma of 3.

The AB and Bw horizons are silt loam or silty clay loam with 20 to 35 percent clay.

The 2C horizon is silt loam or loam with 20 to 25 percent clay.

Windybutte Series

The Windybutte series consists of very deep, well drained soils that formed in alluvium. The soils are on lake terraces. Slope is 2 to 5 percent. Elevation is 4,000 to 4,200 feet. The mean annual precipitation is 10 to 12 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Fine-silty, mixed, frigid Argiduridic Argixerolls

Typical pedon of Windybutte silt loam, 2 to 5 percent slopes, about 500 feet south and 1,250 feet west of the northeast corner of sec. 24, T. 25 S., R. 33 E.; Crane quadrangle.

A—0 to 7 inches; grayish brown (10YR 5/2) silt loam, dark brown (10YR 3/3) moist; weak fine subangular blocky structure; slightly hard, very friable, slightly sticky and slightly plastic; common fine and many very fine roots; many fine vesicular pores; neutral (pH 7.2); clear wavy boundary.

Bt—7 to 13 inches; brown (10YR 5/3) silty clay loam, dark brown (10YR 3/3) moist; moderate fine subangular blocky structure; slightly hard, friable, moderately sticky and moderately plastic; few fine roots; few fine tubular pores; common faint clay films on faces of peds; moderately alkaline (pH 8.2); clear smooth boundary.

2Bkq—13 to 17 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; very hard, firm and brittle, slightly sticky and slightly plastic; common fine roots; few fine tubular pores; strongly effervescent with carbonates in filaments; 4 percent calcium carbonate equivalent; moderately alkaline (pH 8.4); clear smooth boundary.

2Bq1—17 to 32 inches; pale brown (10YR 6/3) loam, brown (10YR 4/3) moist; massive; very hard, firm and brittle, nonsticky and nonplastic; few fine roots; common very fine tubular pores; moderately alkaline (pH 8.2); gradual smooth boundary.

2Bq2—32 to 60 inches; very pale brown (10YR 7/3) loam, dark brown (10YR 5/3) moist; massive; very hard, firm and brittle, nonsticky and nonplastic; moderately alkaline (pH 8.2).

The mollic epipedon is 10 to 17 inches thick. Bedrock is at a depth of more than

60 inches. Depth to the brittle layer and carbonates is 10 to 17 inches. The particle-size control section is 25 to 35 percent clay.

The A horizon has chroma of 2 or 3 moist or dry. It is neutral or slightly alkaline.

The Bt horizon is silty clay loam or silt loam with 25 to 35 percent clay.

The 2Bkq horizon has value of 6 or 7 dry and 3 to 5 moist, and it has chroma of 2 to 4 dry or moist. It is loam or sandy loam with 10 to 20 percent clay. It is moderately alkaline or strongly alkaline. It has a calcium carbonate equivalent of 2 to 5 percent.

Wolverine Series

The Wolverine series consists of very deep, somewhat excessively drained soils that formed in eolian sand. The soils are on dunes. Slope is 2 to 15 percent. Elevation is 4,000 to 4,500 feet. The mean annual precipitation is 8 to 10 inches, and the mean annual air temperature is 43 to 45 degrees F.

Taxonomic classification: Mixed, frigid Xeric Torripsamments

Typical pedon of Wolverine fine sand, 2 to 15 percent slopes, about 1,250 feet north and 25 feet west of the southeast corner of sec. 33, T. 25 S., R. 31 E.; Northeast Harney Lake quadrangle.

A—0 to 6 inches; brown (10YR 5/3) fine sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; many very fine and common fine roots; few very fine interstitial pores; neutral (pH 7.2); clear wavy boundary.

C1—6 to 37 inches; brown (10YR 5/3) sand, brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; common very fine and few fine roots; neutral (pH 7.2); diffuse wavy boundary.

C2—37 to 51 inches; light brownish gray (2.5Y 6/2) sand, dark brown (10YR 3/3) moist; single grain; loose, nonsticky and nonplastic; few very fine and common fine roots; slightly alkaline (pH 7.4); clear wavy boundary.

2Ck—51 to 70 inches; light brownish gray (2.5Y 6/2) sand, dark brown (10YR 3/3) moist; massive; slightly hard, friable, nonsticky and nonplastic; few fine roots; weakly consolidated lacustrine sediment with discontinuous filaments of carbonates; strongly effervescent; slightly alkaline (pH 7.8).

Bedrock is at a depth of more than 60 inches. The particle-size control section averages 2 to 5 percent clay. The profile is neutral or slightly alkaline. Depth to the 2Ck horizon is 40 to 60 inches or more.

The C and 2Ck horizons are fine sand, sand, or loamy fine sand. They are 0 to 10 percent rock fragments.

Formation of the Soils

Soils are a product of five influences, or soil-forming factors. The five factors are climate, topography, living organisms, time, and parent material (Jenny, 1941). These factors affect the physical and chemical weathering processes and determine the characteristics of soils.

Moisture, temperature, and other climatic features affect the development of soils. Precipitation leaches soluble compounds in soils, and the rate of chemical reaction increases as temperature increases.

The topography of the landscape on which a soil exists affects soil properties. Different soils develop on active, steep slopes than on stable, level slopes because of the differences in the rate of erosion and deposition. The microclimates on steeper slopes also differ. North-facing slopes have cooler temperatures and more effective moisture than do south-facing slopes.

Living organisms, including both plant and animals in and on the soil, affect the physical and chemical properties of the soil. The rate of organic matter accumulation in a soil is dependent on the biologic community associated with the soil. Animals such as ants and cicadas burrow into the soil and incorporate organic matter, commonly improving porosity and soil structure.

The effect of time is shown in the appearance of soils. Older soils on stable landforms develop more pronounced soil layers, or horizons. A clayey subsoil is an example of development in an older soil. Young or recent soils, such as those adjacent to stream terraces, may not exhibit distinct soil development.

Parent material is the mineral and organic material in which a soil develops. Examples of parent material are tuff and basalt, alluvial sediment from mixed sources, and slightly decomposed organic plant material.

Each of the 170 different soils in the survey area have a unique combination of soil-forming factors. The factors do not act alone; they always act in conjunction with the other factors. A soil profile reflects the effects of all the factors of soil development. The factors of soil formation as they have impacted the soils in the survey area are discussed briefly in the following paragraphs.

The present climate of the survey area is Mediterranean. Most of the precipitation is received in fall through spring, and summers are dry.

The mean annual precipitation and air temperature vary dramatically across the survey area. Precipitation ranges from about 7 inches annually in the Pueblo Valley to more than 50 inches at the summit of Steens Mountain (Daly and others, 1994). The mean annual air temperature ranges from 49 degrees F in the warmest valleys to 40 degrees in the mountains. The typical climate and soil moisture pattern throughout the survey area is illustrated in figure 17. Typically, the soil moisture regime is aridic bordering on xeric. Most of the precipitation is received in fall and winter, when evapotranspiration is either nonexistent or occurs at a low rate. As plant growth commences in April, precipitation decreases and is insufficient for continued plant growth in summer. When the soil dries out, usually in June, the native plants become dormant. The rainfall in fall, snowfall in winter, and snowmelt in spring replenish the soil moisture, and the cycle begins again. At the higher elevations, the temperature is cooler and the precipitation is higher, but a similar pattern of soil-moisture deficit and replenishment exists.

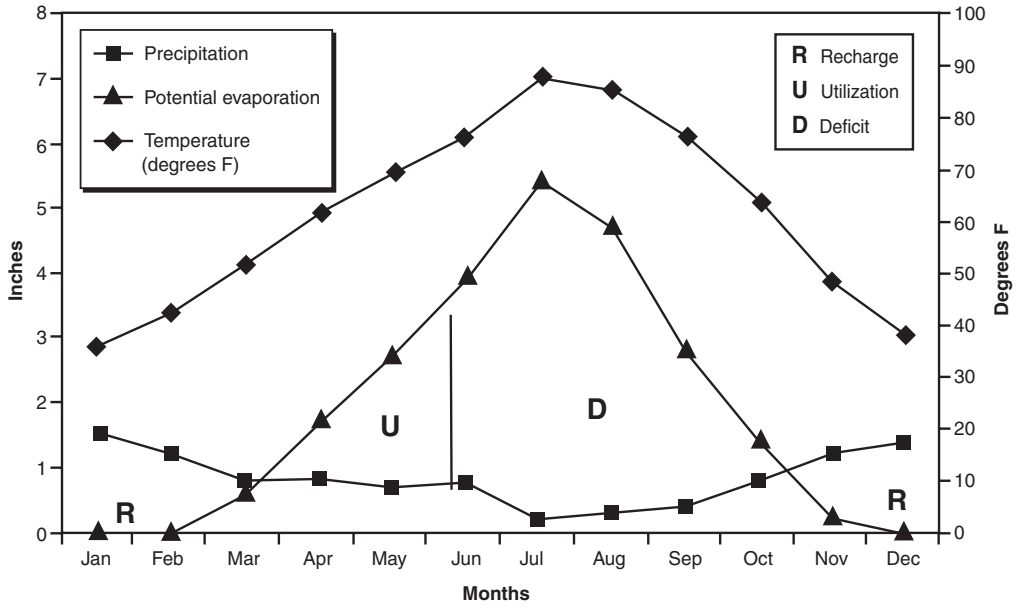


Figure 17.—Temperature and soil water balance for Burns, Oregon, in the period 1921 to 1950.

The present climate influences the current development of soils; however, on old stable landforms, the soils show evidence of a past wetter climate. In the Stampede soil, the alluvial parent material and the leached silica and carbonates that form a cemented duripan exhibit the effects of a wetter environment. The very cobbly lower horizons that were deposited by a much more active stream than the present-day Silver Creek is also evidence of a wetter climate. Lacustrine sediment deposited during the Ice Age is several feet higher in elevation than the current elevation of the lakes. The Poujade, Voltage, and Sandgap soils formed in this sediment. This is evidence of much more water in the basins during previous climatic periods. Airborne salts eroded from playas by wind are continuously deposited on the soil surface (Brasfield, 1982). Rainwater and meltwater from snow dissolve these salts and transport them into the soil profile. In the areas of lower precipitation, the precipitation is insufficient to flush the salts completely through the profile. In the 7- to 10-inch precipitation zone, carbonate salts are leached to a depth of less than 5 inches. Soils that have an annual precipitation of 8 to 12 inches have an accumulation of carbonate salts at a depth of 5 to 10 inches. In soils that have an annual precipitation of more than 12 inches, the salts have been leached from the profile.

The survey area is at the northernmost part of the Basin and Range Province. Except for the Malheur River drainageway in the northeastern part, all of the watersheds terminate in closed basins. During the Ice Age, extensive lakes filled the basins (Snyder and Zdenek, 1964). The maximum depth of the lake in Catlow Valley was 75 feet during the Ice Age. The relationship of the soils and landscapes in Catlow Valley are shown in figure 18. The Catlow, Enko, and Berdugo soils are on ancient beach and lake terrace deposits in and around Catlow Valley. These soils are evidence of the former high shoreline of the lake (fig. 19). On the basin floor, the episodic history of the elevational changes of the lakes is shown in the many different deposits of lacustrine sediment. The Spangenburg, Norad, and Boulder Lake soils formed in these deposits. The Norad soils formed in silty sediment, the Spangenburg soils formed in clayey over loamy sediment, and the Boulder Lake soils formed in very deep clayey sediment.

The maximum depth of the lake in Pueblo Valley was 200 feet during the Ice Age (Snyder and Zdenek, 1964). The relationship of the soils and landscapes in Pueblo

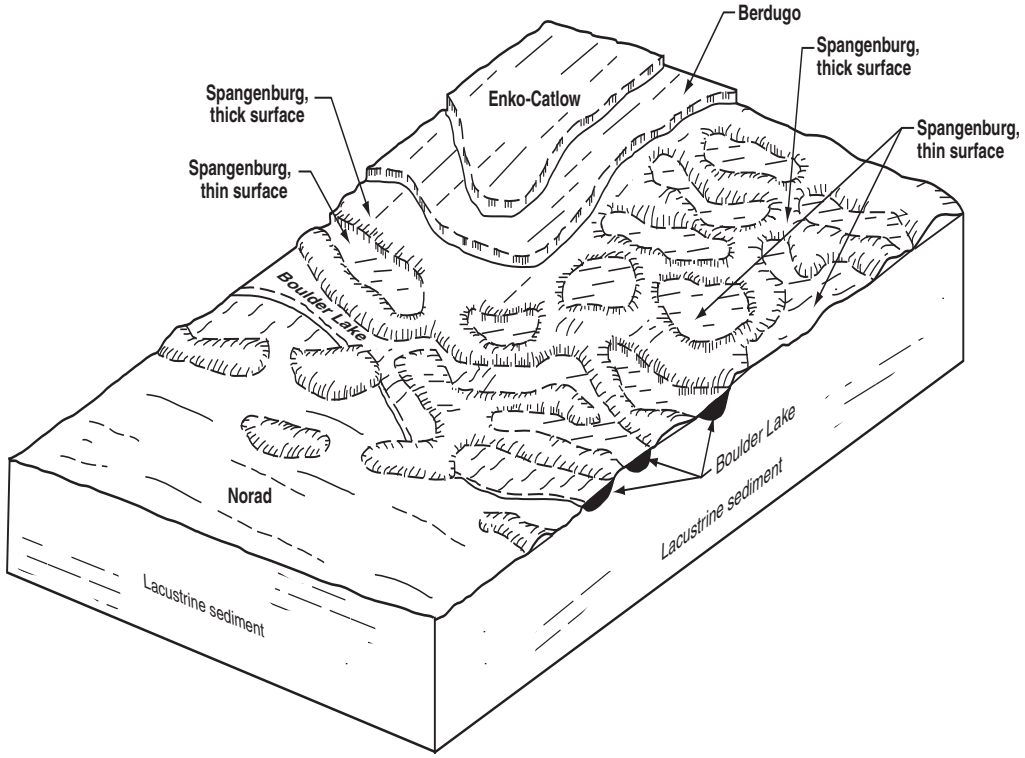


Figure 18.—Soil and landscape relationship in Catlow Valley.



Figure 19.—Pleistocene lake shoreline deposit of rubble material in Catlow Valley. Enko-Catlow association, 2 to 20 percent slopes, in foreground.

Valley are shown in figure 20. The McConnel soils formed in the material deposited as cobbly beaches and offshore bars by the high-energy waves of the lake. The Outerkirk, Defenbaugh, and Rio King soils are on the gently sloping alluvial fans. These soils do not have cobbles or stones in the profile because the larger rock

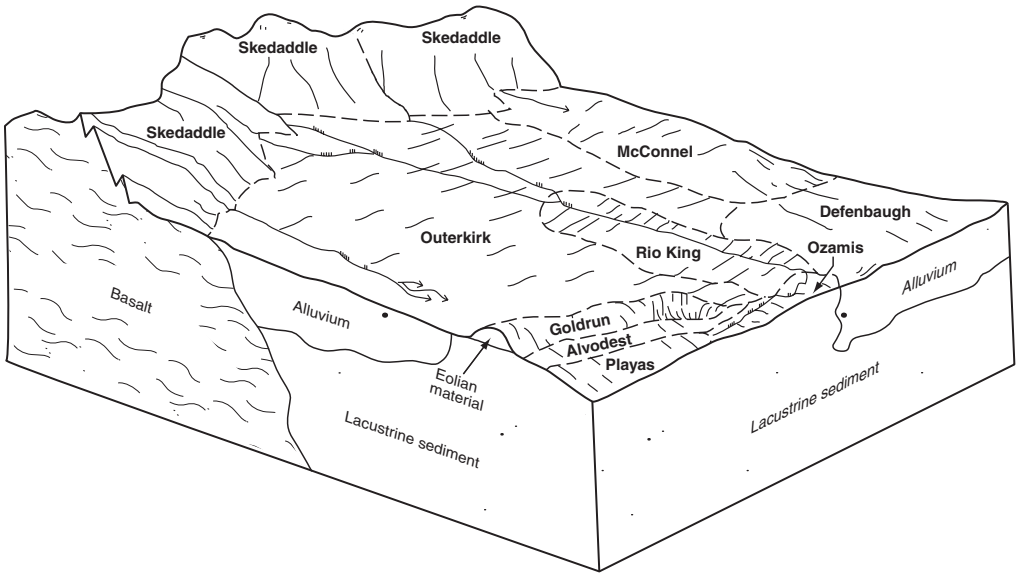


Figure 20.—Soil and landscape relationship in Pueblo Valley.

fragments remained closer to the mountain front. The Goldrun soils formed on sand dunes that are on the downwind side of ancient or historic lakes. The Ozamis soils are in the central part of the former lake. These soils formed in concave areas. Water draining from higher areas collects in the concave areas and provides moisture for an extended period. The water also contributes fresh sediment that covers the soil surface. The repeated burial of the surface layer of these soils resulted in an irregular decrease in organic matter as depth increases. The moist soils provide a favorable environment for growth of living organisms. The abundant growth and subsequent death and decay of soil organisms and plant matter result in an increase in the content of organic matter and humus in the soil. The dark-colored mollic horizon at the surface of the Ozamis soils reflects this increase in organic matter content. The somewhat poorly drained Alvodest soils are on lake plains. The strong alkalinity of these soils restricts the plant growth to widely-spaced adapted plants. The lower productivity of the plant life results in less organic matter being incorporated into the soil surface, thus a light-colored ochric epipedon has formed at the surface.

Soils of the Lolak, Ausmus, Crowcamp, Poujade, and Lawen series formed on the lake plains and lake terraces in Harney Basin. Figure 21 illustrates the relationship of the soils and landscapes in the basin. The clayey Lolak soils are in the lowest positions on the lake plains. The Ausmus and Crowcamp soils are on slightly higher positions on the lake plains. The Poujade soils are on low-lying lake terraces that have a thin mantle of recent alluvium over lacustrine sediment. The Lawen soils are on slightly higher lying lake terraces, and they formed in loamy alluvium.

Near the margins of the basin, perennial streams deposit alluvium over the lacustrine sediment (fig. 22). The sediment eroding from the hills and plateaus is low in alkalinity. The Fury, Degarmo, and Widowspring soils formed in this alluvium. These soils have a very dark, thick surface layer, which is evidence of the high content of organic matter and high natural productivity. The moderately well drained Widowspring soils are in areas farther from streams, and the poorly drained Fury soils and somewhat poorly drained Degarmo soils are adjacent to streams.

Soils on the basin lake plains that are subject to a fluctuating water table have a high level of salinity and alkalinity. Through a process called evaporative recharge, salts and sodium are accumulating on the soil surface. Evaporative recharge occurs in areas where a seasonal high water table is near the soil surface. Water moves

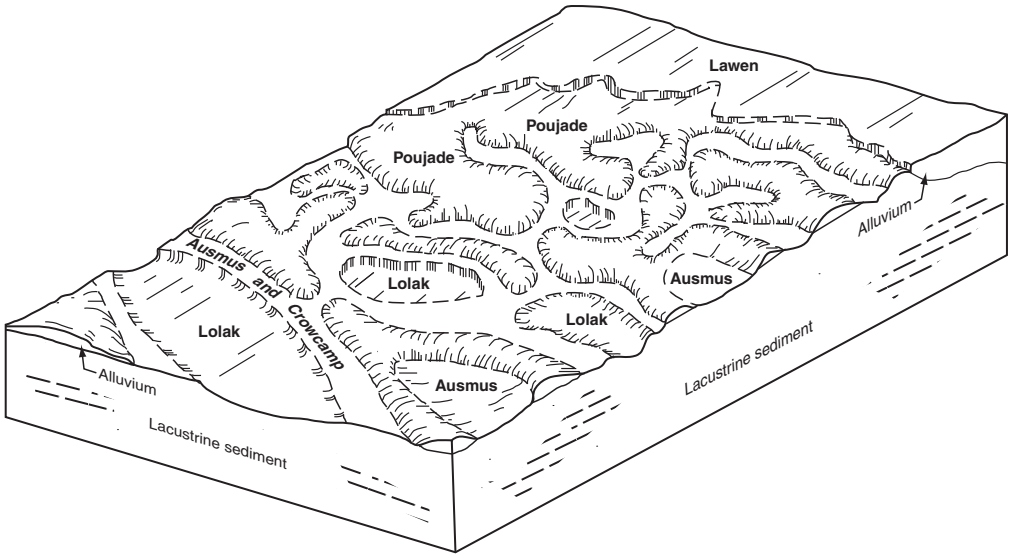


Figure 21.—Soil and landscape relationship in Harney Basin.

upward to the soil surface by capillary migration. This rising water carries with it dissolved salts. Evaporation of the water then concentrates the salts on the soil surface, which appear as a white crust. A limited number of plant species are adapted to these saline or sodic conditions. Soils that have salts on the surface are those of the Icene, Droval, Alvodest, Thenarrows, Skidoosprings, Reese, and Turpin series.

The soils on the steep slopes adjacent to the basins illustrate the influence of topography and living organisms on soil development. The Felcher soils are on steep south and west aspects (fig. 22), and the Fitzwater, Westbutte, and Lambring soils are on steep north and east aspects. Because south- and west-facing slopes are warmer, the soils dry out earlier in summer. The soils on the south-facing slopes have lower plant productivity, and they have an ochric epipedon. The Westbutte, Lambring, and Fitzwater soils, which are on the cooler north- and east-facing slopes, stay moist longer in summer. These soils have a mollic epipedon, indicating a higher content of organic matter and a higher natural plant productivity.

The slopes are relatively stable on the plateaus and hills surrounding the basins, and a strong argillic horizon or a duripan has developed. The Ninemile, Carryback, Anawalt, and Observation soils are examples of soils that have a clayey argillic horizon. The Brace and Raz soils are examples of soils that have a silica-cemented duripan over the bedrock. In the areas that receive less than 12 inches of precipitation, organic matter accumulation is minimal and a light-colored ochric epipedon has formed. The Anawalt, Raz, and Brace soils formed in these areas. In the areas that receive more than 12 inches of precipitation, organic matter accumulates to a greater depth and the soils develop a mollic epipedon. The Ninemile and Carryback soils formed in these areas.

On the high-elevation mountains in the survey area, the soils are cold and precipitation is more than 12 inches. The higher precipitation and cooler temperatures are conducive to the accumulation of organic matter. The Baconcamp, Hapgood, and Hackwood soils in these areas have a thick mollic epipedon, which is evidence of the high content of organic matter in the soils. These soils formed in colluvium and residuum derived from basalt, andesite, and rhyolite. Because of the steep slopes, soil material erodes and creeps downslope, and the development of an argillic horizon is minimal or absent.

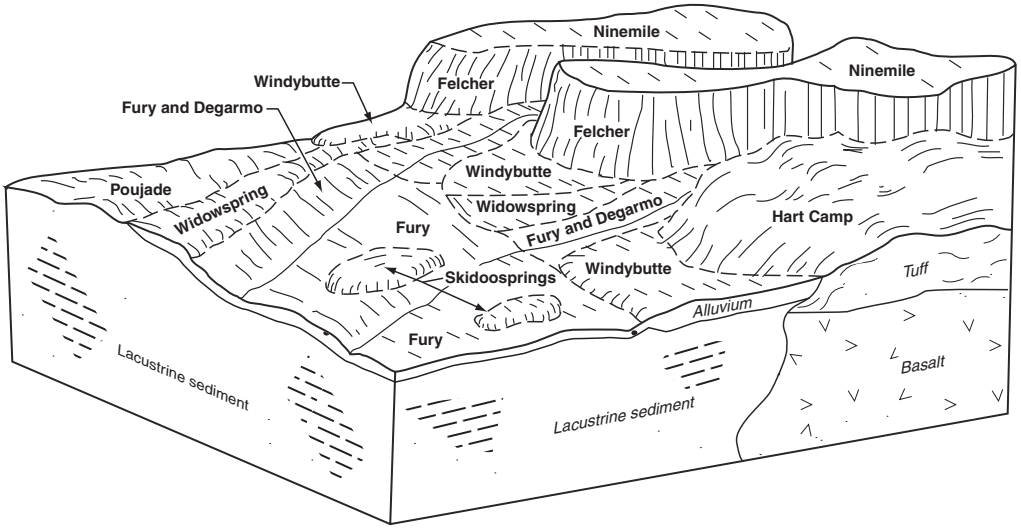


Figure 22.—Soil and landscape relationship near the margins of the basin.

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Glossary

Aggregate, soil. Many fine particles held in a single mass or cluster. Natural soil aggregates, such as granules, blocks, or prisms, are called peds. Clods are aggregates produced by tillage or logging.

Alkali. Sodium carbonate or potassium carbonate or generally, any bitter-tasting salt at the near the soil surface in arid and semiarid regions.

Alkali (sodic) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Alluvial fan. The fanlike deposit of a stream where it issues from a gorge upon a plain or of a tributary stream near or at its junction with its main stream.

Alluvium. Material, such as sand, silt, or clay, deposited on land by streams.

Animal unit month (AUM). The amount of forage required by one mature cow of approximately 1,000 pounds weight, with or without a calf, for 1 month.

Aquic conditions. Current soil wetness characterized by saturation, reduction, and redoximorphic features.

Argillic horizon. A subsoil horizon characterized by an accumulation of illuvial clay.

Ash (volcanic). Unconsolidated, pyroclastic material that is less than 2 millimeters in all dimensions.

Aspect. The direction in which a slope faces.

Association, soil. A group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and defined and delineated as a single map unit.

Available water capacity (available moisture capacity). The capacity of soils to hold water available for use by most plants. It is commonly defined as the difference between the amount of soil water at field moisture capacity and the amount at wilting point. It is commonly expressed as inches of water per inch of soil.

Backslope. The position that forms the steepest and generally linear, middle portion of a hillslope. In profile, backslopes are commonly bounded by a convex shoulder above and a concave footslope below.

Badland. Steep or very steep, commonly nonstony, barren land dissected by many intermittent drainage channels. Badland is most common in semiarid and arid regions where streams are entrenched in soft geologic material. Local relief generally ranges from 25 to 500 feet. Runoff potential is very high, and geologic erosion is active.

Basal area. The area of a cross section of a tree, generally referring to the section at breast height and measured outside the bark. It is a measure of stand density, commonly expressed in square feet.

Base saturation. The degree to which material having cation-exchange properties is saturated with exchangeable bases (sum of Ca, Mg, Na, and K), expressed as a percentage of the total cation-exchange capacity.

Basin. A low area in the earth's crust that is tectonic in origin and in which sediment has accumulated.

Bedrock. The solid rock that underlies the soil and other unconsolidated material or that is exposed at the surface.

Bedrock-controlled topography. A landscape where the configuration and relief of the landforms are determined or strongly influenced by the underlying bedrock.

Blowout. A shallow depression from which all or most of the soil material has been removed by the wind. A blowout has a flat or irregular floor formed by a resistant layer or by an accumulation of pebbles or cobbles. In some blowouts the water table is exposed.

Bottom land. The normal flood plain of a stream, subject to flooding.

Boulders. Rock fragments larger than 2 feet (60 centimeters) in diameter.

Breast height. An average height of 4.5 feet above the ground surface; the point on a tree where diameter measurements are ordinarily taken.

Brush management. Use of mechanical, chemical, or biological methods to make conditions favorable for reseeding or to reduce or eliminate competition from woody vegetation and thus allow understory grasses and forbs to recover. Brush management increases forage production and thus reduces the hazard of erosion. It can improve the habitat for some species of wildlife.

Cable yarding. A method of moving felled trees to a nearby central area for transport to a processing facility. Most cable yarding systems involve use of a drum, a pole, and wire cables in an arrangement similar to that of a rod and reel used for fishing. To reduce friction and soil disturbance, felled trees generally are reeled in while one end is lifted or the entire log is suspended.

Calcareous soil. A soil containing enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid.

Canopy. The leafy crown of trees or shrubs. (See Crown.)

Canyon. A long, deep, narrow, very steep sided valley with high, precipitous walls in an area of high local relief.

Capillary migration. Movement of liquid water as a result of the molecular attraction of the rock material in the water.

Capillary water. Water held as a film around soil particles and in tiny spaces between particles. Surface tension is the adhesive force that holds capillary water in the soil.

Carbonate. A salt of carbonic acid; a compound containing the radical CO_3^{+2}.

Cation. An ion carrying a positive charge of electricity. The common soil cations are calcium, potassium, magnesium, sodium, and hydrogen.

Cation-exchange capacity. The total amount of exchangeable cations that can be held by the soil, expressed in terms of milliequivalents per 100 grams of soil at neutrality (pH 7.0) or at some other stated pH value. The term, as applied to soils, is synonymous with base-exchange capacity but is more precise in meaning.

Chemical treatment. Control of unwanted vegetation through the use of chemicals.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay depletions. Low-chroma zones having a low content of iron, manganese, and clay because of the chemical reduction of iron and manganese and the removal of iron, manganese, and clay. A type of redoximorphic depletion.

Clay film. A thin coating of oriented clay on the surface of a soil aggregate or lining pores or root channels. Synonyms: clay coating, clay skin.

Claypan. A slowly permeable soil horizon that contains much more clay than the horizons above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Climax plant community. The stabilized plant community on a particular site. The plant cover reproduces itself and does not change so long as the environment remains the same.

Coarse textured soil. Sand or loamy sand.
Cobble (or cobblestone). A rounded or partly rounded fragment of rock 3 to 10 inches (7.6 to 25 centimeters) in diameter.
Cobbly soil material. Material that has 15 to 35 percent, by volume, rounded or partially rounded rock fragments 3 to 10 inches (7.6 to 25 centimeters) in diameter. Very cobbly soil material has 35 to 60 percent of these rock fragments, and extremely cobbly soil material has more than 60 percent.
COLE (coefficient of linear extensibility). See Linear extensibility.
Colluvium. Soil material or rock fragments, or both, moved by creep, slide, or local wash and deposited at the base of steep slopes.
Complex slope. Irregular or variable slope. Planning or establishing terraces, diversions, and other water-control structures on a complex slope is difficult.
Complex, soil. A map unit of two or more kinds of soil or miscellaneous areas in such an intricate pattern or so small in area that it is not practical to map them separately at the selected scale of mapping. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas.
Concretions. Cemented bodies with crude internal symmetry organized around a point, a line, or a plane. They typically take the form of concentric layers visible to the naked eye. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up concretions. If formed in place, concretions of iron oxide or manganese oxide are generally considered a type of redoximorphic concentration.
Consistence, soil. Refers to the degree of cohesion and adhesion of soil material and its resistance to deformation when ruptured. Consistence includes resistance of soil material to rupture and to penetration; plasticity, toughness, and stickiness of puddled soil material; and the manner in which the soil material behaves when subject to compression. Terms describing consistence are defined in the "Soil Survey Manual."
Control section. The part of the soil on which classification is based. The thickness varies among different kinds of soil, but for many it is that part of the soil profile between depths of 10 inches and 40 or 80 inches.
Coppice dune. A small dune of fine grained soil material stabilized around shrubs or small trees.
Corrosion. Soil-induced electrochemical or chemical action that dissolves or weakens concrete or uncoated steel.
Cover crop. A close-growing crop grown primarily to improve and protect the soil between periods of regular crop production, or a crop grown between trees and vines in orchards and vineyards.
Cropping system. Growing crops according to a planned system of rotation and management practices.
Crop residue management. Returning crop residue to the soil, which helps to maintain soil structure, organic matter content, and fertility and helps to control erosion.
Culmination of the mean annual increment (CMAI). The average annual increase per acre in the volume of a stand. Computed by dividing the total volume of the stand by its age. As the stand increases in age, the mean annual increment continues to increase until mortality begins to reduce the rate of increase. The point where the stand reaches its maximum annual rate of growth is called the culmination of the mean annual increment.
Cutbanks cave (in tables). The walls of excavations tend to cave in or slough.
Decreasers. The most heavily grazed climax range plants. Because they are the most palatable, they are the first to be destroyed by overgrazing.
Deferred grazing. Postponing grazing or resting grazing land for a prescribed period.
Depth, soil. Generally, the thickness of the soil over bedrock. Very deep soils are

more than 60 inches deep over bedrock; deep soils, 40 to 60 inches; moderately deep, 20 to 40 inches; shallow, 10 to 20 inches; and very shallow, less than 10 inches.

Desert pavement. On a desert surface, a layer of gravel or larger fragments that was emplaced by upward movement of the underlying sediments or that remains after finer particles have been removed by running water or the wind.

Dip slope. A slope of the land surface, roughly determined by and approximately conforming to the dip of the underlying bedrock.

Drainage class (natural). Refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized—*excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained,* and *very poorly drained*. These classes are defined in the "Soil Survey Manual."

Drainage, surface. Runoff, or surface flow of water, from an area.

Draw. A small stream valley that generally is more open and has broader bottom land than a ravine or gulch.

Duripan. A subsurface soil horizon that is cemented by illuvial silica, commonly opal or microcrystalline forms of silica, to the degree that less than 50 percent of the volume of air-dry fragments will slake in water or HC1.

Ecological site. An area where climate, soil, and relief are sufficiently uniform to produce a distinct natural plant community. An ecological site is the product of all the environmental factors responsible for its development. It is typified by an association of species that differ from those on other ecological sites in kind and/or proportion of species or in total production.

Eluviation. The movement of material in true solution or colloidal suspension from one place to another within the soil. Soil horizons that have lost material through eluviation are eluvial; those that have received material are illuvial.

Endosaturation. A type of saturation of the soil in which all horizons between the upper boundary of saturation and a depth of 2 meters are saturated.

Eolian soil material. Earthy parent material accumulated through wind action; commonly refers to sandy material in dunes or to loess in blankets on the surface.

Ephemeral stream. A stream, or reach of a stream, that flows only in direct response to precipitation. It receives no long-continued supply from melting snow or other source, and its channel is above the water table at all times.

Episaturation. A type of saturation indicating a perched water table in a soil in which saturated layers are underlain by one or more unsaturated layers within 2 meters of the surface.

Erosion. The wearing away of the land surface by water, wind, ice, or other geologic agents and by such processes as gravitational creep.

Erosion (geologic). Erosion caused by geologic processes acting over long geologic periods and resulting in the wearing away of mountains and the building up of such landscape features as flood plains and coastal plains. Synonym: natural erosion.

Erosion (accelerated). Erosion much more rapid than geologic erosion, mainly as a result of human or animal activities or of a catastrophe in nature, such as a fire, that exposes the surface.

Erosion pavement. A layer of gravel or stones that remains on the surface after fine particles are removed by sheet or rill erosion.

Escarpment. A relatively continuous and steep slope or cliff breaking the general

continuity of more gently sloping land surfaces and resulting from erosion or faulting. Synonym: scarp.

Extrusive rock. Igneous rock derived from deep-seated molten matter (magma) emplaced on the earth's surface.

Fan terrace. A relict alluvial fan, no longer a site of active deposition, incised by younger and lower alluvial surfaces.

Fibric soil material (peat). The least decomposed of all organic soil material. Peat contains a large amount of well preserved fiber that is readily identifiable according to botanical origin. Peat has the lowest bulk density and the highest water content at saturation of all organic soil material.

Field moisture capacity. The moisture content of a soil, expressed as a percentage of the ovendry weight, after the gravitational, or free, water has drained away; the field moisture content 2 or 3 days after a soaking rain; also called *normal field capacity, normal moisture capacity,* or *capillary capacity*.

Fine textured soil. Sandy clay, silty clay, or clay.

Flood plain. A nearly level alluvial plain that borders a stream and is subject to flooding unless protected artificially.

Fluvial. Of or pertaining to rivers; produced by river action, as a fluvial plain.

Foothill. A steeply sloping upland that has relief of as much as 1,000 feet (300 meters) and fringes a mountain range or high-plateau escarpment.

Footslope. The position that forms the inner, gently inclined surface at the base of a hillslope. In profile, footslopes are commonly concave. A footslope is a transition zone between upslope sites of erosion and transport (shoulders and backslopes) and downslope sites of deposition (toeslopes).

Forb. Any herbaceous plant not a grass or a sedge.

Forest cover. All trees and other woody plants (underbrush) covering the ground in a forest.

Forest type. A stand of trees similar in composition and development because of given physical and biological factors by which it may be differentiated from other stands.

Genesis, soil. The mode of origin of the soil. Refers especially to the processes or soil-forming factors responsible for the formation of the solum, or true soil, from the unconsolidated parent material.

Gleyed soil. Soil that formed under poor drainage, resulting in the reduction of iron and other elements in the profile and in gray colors.

Gravel. Rounded or angular fragments of rock as much as 3 inches (2 millimeters to 7.6 centimeters) in diameter. An individual piece is a pebble.

Gravelly soil material. Material that has 15 to 35 percent, by volume, rounded or angular rock fragments, not prominently flattened, as much as 3 inches (7.6 centimeters) in diameter.

Ground water. Water filling all the unblocked pores of the material below the water table.

Gully. A miniature valley with steep sides cut by running water and through which water ordinarily runs only after rainfall. The distinction between a gully and a rill is one of depth. A gully generally is an obstacle to farm machinery and is too deep to be obliterated by ordinary tillage; a rill is of lesser depth and can be smoothed over by ordinary tillage.

Habitat type. The collective area occupied by a plant association. A habitat type is defined and described on the basis of the vegetation and its associated environment.

Hardpan. A hardened or cemented soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Hard to reclaim (in tables). Reclamation is difficult after the removal of soil for construction and other uses. Revegetation and erosion control are extremely difficult.

Hemic soil material (mucky peat). Organic soil material intermediate in degree of decomposition between the less decomposed fibric material and the more decomposed sapric material.

Hill. A natural elevation of the land surface, rising as much as 1,000 feet above surrounding lowlands, commonly of limited summit area and having a well defined outline; hillsides generally have slopes of more than 15 percent. The distinction between a hill and a mountain is arbitrary and is dependent on local usage.

Horizon, soil. A layer of soil, approximately parallel to the surface, having distinct characteristics produced by soil-forming processes. In the identification of soil horizons, an uppercase letter represents the major horizons. Numbers or lowercase letters that follow represent subdivisions of the major horizons. An explanation of the subdivisions is given in the "Soil Survey Manual." The major horizons of mineral soil are as follows:

O horizon.—An organic layer of fresh and decaying plant residue.

A horizon.—The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with the mineral material. Also, a plowed surface horizon, most of which was originally part of a B horizon.

E horizon.—The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.

B horizon.—The mineral horizon below an A horizon. The B horizon is in part a layer of transition from the overlying A to the underlying C horizon. The B horizon also has distinctive characteristics, such as (1) accumulation of clay, sesquioxides, humus, or a combination of these; (2) prismatic or blocky structure; (3) redder or browner colors than those in the A horizon; or (4) a combination of these.

C horizon.—The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil-forming processes and does not have the properties typical of the overlying soil material. The material of a C horizon may be either like or unlike that in which the solum formed. If the material is known to differ from that in the solum, an Arabic numeral, commonly a 2, precedes the letter C.

Cr horizon.—Soft, consolidated bedrock beneath the soil.

R layer.—Consolidated bedrock beneath the soil. The bedrock commonly underlies a C horizon, but it can be directly below an A or a B horizon.

Humus. The well decomposed, more or less stable part of the organic matter in mineral soils.

Hydrologic soil groups. Refers to soils grouped according to their runoff potential. The soil properties that influence this potential are those that affect the minimum rate of water infiltration on a bare soil during periods after prolonged wetting when the soil is not frozen. These properties are depth to a seasonal high water table, the infiltration rate and permeability after prolonged wetting, and depth to a very slowly permeable layer. The slope and the kind of plant cover are not considered but are separate factors in predicting runoff.

Igneous rock. Rock formed by solidification from a molten or partially molten state. Major varieties include plutonic and volcanic rock. Examples are andesite, basalt, and granite.

Illuviation. The movement of soil material from one horizon to another in the soil profile. Generally, material is removed from an upper horizon and deposited in a lower horizon.

Increasers. Species in the climax vegetation that increase in amount as the more

desirable plants are reduced by close grazing. Increasers commonly are the shorter plants and the less palatable to livestock.

Infiltration. The downward entry of water into the immediate surface of soil or other material, as contrasted with percolation, which is movement of water through soil layers or material.

Infiltration rate. The rate at which water penetrates the surface of the soil at any given instant, usually expressed in inches per hour. The rate can be limited by the infiltration capacity of the soil or the rate at which water is applied at the surface.

Intermittent stream. A stream, or reach of a stream, that flows for prolonged periods only when it receives ground-water discharge or long, continued contributions from melting snow or other surface and shallow subsurface sources.

Invaders. On range, plants that encroach into an area and grow after the climax vegetation has been reduced by grazing. Generally, plants invade following disturbance of the surface.

Iron depletions. Low-chroma zones having a low content of iron and manganese oxide because of chemical reduction and removal, but having a clay content similar to that of the adjacent matrix. A type of redoximorphic depletion.

Irrigation. Application of water to soils to assist in production of crops. Methods of irrigation are:

Basin.—Water is applied rapidly to nearly level plains surrounded by levees or dikes.

Border.—Water is applied at the upper end of a strip in which the lateral flow of water is controlled by small earth ridges called border dikes, or borders.

Controlled flooding.—Water is released at intervals from closely spaced field ditches and distributed uniformly over the field.

Corrugation.—Water is applied to small, closely spaced furrows or ditches in fields of close-growing crops or in orchards so that it flows in only one direction.

Drip (or trickle).—Water is applied slowly and under low pressure to the surface of the soil or into the soil through such applicators as emitters, porous tubing, or perforated pipe.

Furrow.—Water is applied in small ditches made by cultivation implements. Furrows are used for tree and row crops.

Sprinkler.—Water is sprayed over the soil surface through pipes or nozzles from a pressure system.

Subirrigation.—Water is applied in open ditches or tile lines until the water table is raised enough to wet the soil.

Wild flooding.—Water, released at high points, is allowed to flow onto an area without controlled distribution.

K_{sat}. Saturated hydraulic conductivity. (See Permeability.)

Lacustrine deposit. Material deposited in lake water and exposed when the water level is lowered or the elevation of the land is raised.

Landslide. The rapid downhill movement of a mass of soil and loose rock, generally when wet or saturated. The speed and distance of movement, as well as the amount of soil and rock material, vary greatly.

Large stones (in tables). Rock fragments 3 inches (7.6 centimeters) or more across. Large stones adversely affect the specified use of the soil.

Leaching. The removal of soluble material from soil or other material by percolating water.

Linear extensibility. Refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. Linear extensibility is used to determine the shrink-swell potential of soils. It is an expression of the volume change between the water content of the clod at $^1/_3$- or $^1/_{10}$-bar tension (33kPa or 10kPa tension) and oven dryness. Volume change is influenced by the

amount and type of clay minerals in the soil. The volume change is the percent change for the whole soil. If it is expressed as a fraction, the resulting value is COLE, coefficient of linear extensibility.

Liquid limit. The moisture content at which the soil passes from a plastic to a liquid state.

Loam. Soil material that is 7 to 27 percent clay particles, 28 to 50 percent silt particles, and less than 52 percent sand particles.

Low strength. The soil is not strong enough to support loads.

Masses. Concentrations of substances in the soil matrix that do not have a clearly defined boundary with the surrounding soil material and cannot be removed as a discrete unit. Common compounds making up masses are calcium carbonate, gypsum or other soluble salts, iron oxide, and manganese oxide. Masses consisting of iron oxide or manganese oxide generally are considered a type of redoximorphic concentration.

Mechanical treatment. Use of mechanical equipment for seeding, brush management, and other management practices.

Medium textured soil. Very fine sandy loam, loam, silt loam, or silt.

Metamorphic rock. Rock of any origin altered in mineralogical composition, chemical composition, or structure by heat, pressure, and movement. Nearly all such rocks are crystalline.

Microclimate. The climate of a small distinct area, such as a forest or city, or a confined space, such as a building or greenhouse.

Mineral soil. Soil that is mainly mineral material and low in organic material. Its bulk density is more than that of organic soil.

Miscellaneous area. An area that has little or no natural soil and supports little or no vegetation.

Moderately coarse textured soil. Coarse sandy loam, sandy loam, or fine sandy loam.

Moderately fine textured soil. Clay loam, sandy clay loam, or silty clay loam.

Mollic epipedon. A thick, dark, humus-rich surface horizon (or horizons) that has high base saturation and pedogenic soil structure. It may include the upper part of the subsoil.

Morphology, soil. The physical makeup of the soil, including the texture, structure, porosity, consistence, color, and other physical, mineral, and biological properties of the various horizons, and the thickness and arrangement of those horizons in the soil profile.

Mottling, soil. Irregular spots of different colors that vary in number and size. Descriptive terms are as follows: abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent*. The size measurements are of the diameter along the greatest dimension. *Fine* indicates less than 5 millimeters (about 0.2 inch); *medium,* from 5 to 15 millimeters (about 0.2 to 0.6 inch); and *coarse,* more than 15 millimeters (about 0.6 inch).

Mountain. A natural elevation of the land surface, rising more than 1,000 feet above surrounding lowlands, commonly of restricted summit area (relative to a plateau) and generally having steep sides. A mountain can occur as a single, isolated mass or in a group forming a chain or range.

Muck. Dark, finely divided, well decomposed organic soil material. (See Sapric soil material.)

Munsell notation. A designation of color by degrees of three simple variables—hue, value, and chroma. For example, a notation of 10YR 6/4 is a color with hue of 10YR, value of 6, and chroma of 4.

Natric horizon. A special kind of argillic horizon that contains enough exchangeable sodium to have an adverse effect on the physical condition of the subsoil.

Neutral soil. A soil having a pH value of 6.6 to 7.3. (See Reaction, soil.)

Nodules. Cemented bodies lacking visible internal structure. Calcium carbonate, iron oxide, and manganese oxide are common compounds making up nodules. If formed in place, nodules of iron oxide or manganese oxide are considered types of redoximorphic concentrations.

Nutrient, plant. Any element taken in by a plant essential to its growth. Plant nutrients are mainly nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, and zinc obtained from the soil and carbon, hydrogen, and oxygen obtained from the air and water.

Organic matter. Plant and animal residue in the soil in various stages of decomposition.

Pan. A compact, dense layer in a soil that impedes the movement of water and the growth of roots. For example, *hardpan, fragipan, claypan, plowpan,* and *traffic pan*.

Parent material. The unconsolidated organic and mineral material in which soil forms.

Peat. Unconsolidated material, largely undecomposed organic matter, that has accumulated under excess moisture. (See Fibric soil material.)

Ped. An individual natural soil aggregate, such as a granule, a prism, or a block.

Pedon. The smallest volume that can be called "a soil." A pedon is three dimensional and large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.

Percolation. The movement of water through the soil.

Permeability. The quality of the soil that enables water or air to move downward through the profile. The rate at which a saturated soil transmits water is accepted as a measure of this quality. In soil physics, the rate is referred to as "saturated hydraulic conductivity," which is defined in the "Soil Survey Manual." In line with conventional usage in the engineering profession and with traditional usage in published soil surveys, this rate of flow continues to be expressed as "permeability." Terms describing permeability, measured in inches per hour, are as follows:

Impermeable	less than 0.0015 inch
Very slow	0.0015 to 0.06 inch
Slow	0.06 to 0.2 inch
Moderately slow	0.2 to 0.6 inch
Moderate	0.6 inch to 2.0 inches
Moderately rapid	2.0 to 6.0 inches
Rapid	6.0 to 20 inches
Very rapid	more than 20 inches

Phase, soil. A subdivision of a soil series based on features that affect its use and management, such as slope, stoniness, and flooding.

pH value. A numerical designation of acidity and alkalinity in soil. (See Reaction, soil.)

Piping (in tables). Formation of subsurface tunnels or pipelike cavities by water moving through the soil.

Pitting (in tables). Pits caused by melting around ice. They form on the soil after plant cover is removed.

Plant association. A kind of climax plant community consisting of stands with essentially the same dominant species in corresponding layers.

Plasticity index. The numerical difference between the liquid limit and the plastic limit; the range of moisture content within which the soil remains plastic.

Plastic limit. The moisture content at which a soil changes from semisolid to plastic.

Plateau. An extensive upland mass with relatively flat summit area that is considerably elevated (more than 100 meters) above adjacent lowlands and separated from them on one or more sides by escarpments.

Playa. The generally dry and nearly level lake plain that occupies the lowest parts of closed depressional areas, such as those on intermontane basin floors. Temporary flooding occurs primarily in response to precipitation and runoff.

Ponding. Standing water on soils in closed depressions. Unless the soils are artificially drained, the water can be removed only by percolation or evapotranspiration.

Poorly graded. Refers to a coarse grained soil or soil material consisting mainly of particles of nearly the same size. Because there is little difference in size of the particles, density can be increased only slightly by compaction.

Potential rooting depth (effective rooting depth). Depth to which roots could penetrate if the content of moisture in the soil were adequate. The soil has no properties restricting the penetration of roots to this depth.

Prescribed burning. Deliberately burning an area for specific management purposes, under the appropriate conditions of weather and soil moisture and at the proper time of day.

Productivity, soil. The capability of a soil for producing a specified plant or sequence of plants under specific management.

Profile, soil. A vertical section of the soil extending through all its horizons and into the parent material.

Proper grazing use. Grazing at an intensity that maintains enough cover to protect the soil and maintain or improve the quantity and quality of the desirable vegetation. This practice increases the vigor and reproduction capacity of the key plants and promotes the accumulation of litter and mulch necessary to conserve soil and water.

Rangeland. Land on which the potential natural vegetation is predominantly grasses, grasslike plants, forbs, or shrubs suitable for grazing or browsing. It includes natural grasslands, savannas, many wetlands, some deserts, tundras, and areas that support certain forb and shrub communities.

Reaction, soil. A measure of acidity or alkalinity of a soil, expressed in pH values. A soil that tests to pH 7.0 is described as precisely neutral in reaction because it is neither acid nor alkaline. The degrees of acidity or alkalinity, expressed as pH values, are:

Ultra acid	less than 3.5
Extremely acid	3.5 to 4.4
Very strongly acid	4.5 to 5.0
Strongly acid	5.1 to 5.5
Moderately acid	5.6 to 6.0
Slightly acid	6.1 to 6.5
Neutral	6.6 to 7.3
Slightly alkaline	7.4 to 7.8
Moderately alkaline	7.9 to 8.4
Strongly alkaline	8.5 to 9.0
Very strongly alkaline	9.1 and higher

Redoximorphic concentrations. Nodules, concretions, soft masses, pore linings, and other features resulting from the accumulation of iron or manganese oxide. An indication of chemical reduction and oxidation resulting from saturation.

Redoximorphic depletions. Low-chroma zones from which iron and manganese oxide or a combination of iron and manganese oxide and clay has been removed.

These zones are indications of the chemical reduction of iron resulting from saturation.

Redoximorphic features. Redoximorphic concentrations, redoximorphic depletions, reduced matrices, a positive reaction to alpha,alpha-dipyridyl, and other features indicating the chemical reduction and oxidation of iron and manganese compounds resulting from saturation.

Reduced matrix. A soil matrix that has low chroma in situ because of chemically reduced iron (Fe II). The chemical reduction results from nearly continuous wetness. The matrix undergoes a change in hue or chroma within 30 minutes after exposure to air as the iron is oxidized (Fe III). A type of redoximorphic feature.

Regolith. The unconsolidated mantle of weathered rock and soil material on the earth's surface; the loose earth material above the solid rock.

Relief. The elevations or inequalities of a land surface, considered collectively.

Residuum (residual soil material). Unconsolidated, weathered or partly weathered mineral material that accumulated as consolidated rock disintegrated in place.

Rill. A steep-sided channel resulting from accelerated erosion. A rill generally is a few inches deep and not wide enough to be an obstacle to farm machinery.

Rock fragments. Rock or mineral fragments having a diameter of 2 millimeters or more; for example, pebbles, cobbles, stones, and boulders.

Rock outcrop. Exposures of barren bedrock.

Root zone. The part of the soil that can be penetrated by plant roots.

Rubble land. Areas of cobbles, stones, and boulders, commonly at the base of mountains.

Runoff. The precipitation discharged into stream channels from an area. The water that flows off the surface of the land without sinking into the soil is called surface runoff. Water that enters the soil before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Saline soil. A soil containing soluble salts in an amount that impairs growth of plants. A saline soil does not contain excess exchangeable sodium.

Sand. As a soil separate, individual rock or mineral fragments from 0.05 millimeter to 2.0 millimeters in diameter. Most sand grains consist of quartz. As a soil textural class, a soil that is 85 percent or more sand and not more than 10 percent clay.

Sapric soil material (muck). The most highly decomposed of all organic soil material. Muck has the least amount of plant fiber, the highest bulk density, and the lowest water content at saturation of all organic soil material.

Saturation. Wetness characterized by zero or positive pressure of the soil water. Under conditions of saturation, the water will flow from the soil matrix into an unlined auger hole.

Sedimentary rock. Rock made up of particles deposited from suspension in water. The chief kinds of sedimentary rock are conglomerate, formed from gravel; sandstone, formed from sand; shale, formed from clay; and limestone, formed from soft masses of calcium carbonate. There are many intermediate types. Some wind-deposited sand is consolidated into sandstone.

Sequum. A sequence consisting of an illuvial horizon and the overlying eluvial horizon. (See Eluviation.)

Series, soil. A group of soils that have profiles that are almost alike, except for differences in texture of the surface layer. All the soils of a series have horizons that are similar in composition, thickness, and arrangement.

Sheet erosion. The removal of a fairly uniform layer of soil material from the land surface by the action of rainfall and surface runoff.

Shoulder. The position that forms the uppermost inclined surface near the top of a

hillslope. It is a transition from backslope to summit. The surface is dominantly convex in profile and erosional in origin.

Shrink-swell (in tables). The shrinking of soil when dry and the swelling when wet. Shrinking and swelling can damage roads, dams, building foundations, and other structures. It can also damage plant roots.

Side slope. A geomorphic component of hills consisting of a laterally planar area of a hillside. The overland waterflow is predominantly parallel.

Silica. A combination of silicon and oxygen. The mineral form is called quartz.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a soil textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Similar soils. Soils that share limits of diagnostic criteria, behave and perform in a similar manner, and have similar conservation needs or management requirements for the major land uses in the survey area.

Site index. A designation of the quality of a forest site based on the height of the dominant stand at an arbitrarily chosen age. For example, if the average height attained by dominant and codominant trees in a fully stocked stand at the age of 50 years is 75 feet, the site index is 75.

Slickensides. Polished and grooved surfaces produced by one mass sliding past another. In soils, slickensides may occur at the bases of slip surfaces on the steeper slopes; on faces of blocks, prisms, and columns; and in swelling clayey soils, where there is marked change in moisture content.

Slick spot. A small area of soil having a puddled, crusted, or smooth surface and an excess of exchangeable sodium. The soil generally is silty or clayey, is slippery when wet, and is low in productivity.

Slope. The inclination of the land surface from the horizontal. Percentage of slope is the vertical distance divided by horizontal distance, then multiplied by 100. Thus, a slope of 20 percent is a drop of 20 feet in 100 feet of horizontal distance.

Slow refill (in tables). The slow filling of ponds, resulting from restricted permeability in the soil.

Sodic (alkali) soil. A soil having so high a degree of alkalinity (pH 8.5 or higher) or so high a percentage of exchangeable sodium (15 percent or more of the total exchangeable bases), or both, that plant growth is restricted.

Sodicity. The degree to which a soil is affected by exchangeable sodium. Sodicity is expressed as a sodium adsorption ratio (SAR) of a saturation extract, or the ratio of Na^{+} to $Ca^{++} + Mg^{++}$. The degrees of sodicity and their respective ratios are:

Slight	less than 13:1
Moderate	13-30:1
Strong	more than 30:1

Sodium adsorption ratio (SAR). A measure of the amount of sodium (Na) relative to calcium (Ca) and magnesium (Mg) in the water extract from saturated soil paste. It is the ratio of the Na concentration divided by the square root of one-half of the Ca + Mg concentration.

Soil. A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Soil separates. Mineral particles less than 2 millimeters in equivalent diameter and ranging between specified size limits. The names and sizes, in millimeters, of separates recognized in the United States are as follows:

Very coarse sand	2.0 to 1.0
Coarse sand	1.0 to 0.5
Medium sand	0.5 to 0.25
Fine sand	0.25 to 0.10
Very fine sand	0.10 to 0.05
Silt	0.05 to 0.002
Clay	less than 0.002

Solum. The upper part of a soil profile, above the C horizon, in which the processes of soil formation are active. The solum in soil consists of the A, E, and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the material below the solum. The living roots and plant and animal activities are largely confined to the solum.

Stone line. A concentration of coarse fragments in a soil. Generally, it is indicative of an old weathered surface. In a cross section, the line may be one fragment or more thick. It generally overlies material that weathered in place and is overlain by recent sediment of variable thickness.

Stones. Rock fragments 10 to 24 inches (25 to 60 centimeters) in diameter if rounded or 15 to 24 inches (38 to 60 centimeters) in length if flat.

Stony. Refers to a soil containing stones in numbers that interfere with or prevent tillage.

Structure, soil. The arrangement of primary soil particles into compound particles or aggregates. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular*. *Structureless* soils are either *single grained* (each grain by itself, as in dune sand) or *massive* (the particles adhering without any regular cleavage, as in many hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the solum below plow depth.

Subsoiling. Tilling a soil below normal plow depth, ordinarily to shatter a hardpan or claypan.

Substratum. The part of the soil below the solum.

Subsurface layer. Any surface soil horizon (A, E, AB, or EB) below the surface layer.

Summit. The topographically highest position of a hillslope. It has a nearly level (planar or only slightly convex) surface.

Surface layer. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, ranging in depth from 4 to 10 inches (10 to 25 centimeters). Frequently designated as the “plow layer,” or the “Ap horizon.”

Surface soil. The A, E, AB, and EB horizons, considered collectively. It includes all subdivisions of these horizons.

Talus. Fragments of rock and other soil material accumulated by gravity at the foot of cliffs or steep slopes.

Taxadjuncts. Soils that cannot be classified in a series recognized in the classification system. Such soils are named for a series they strongly resemble and are designated as taxadjuncts to that series because they differ in ways too small to be of consequence in interpreting their use and behavior. Soils are recognized as taxadjuncts only when one or more of their characteristics are slightly outside the range defined for the family of the series for which the soils are named.

Terrace. An embankment, or ridge, constructed across sloping soils on the contour or at a slight angle to the contour. The terrace intercepts surface runoff so that water soaks into the soil or flows slowly to a prepared outlet. A terrace in a field generally is built so that the field can be farmed. A terrace intended mainly for drainage has a deep channel that is maintained in permanent sod.

Terrace (geologic). An old alluvial plain, ordinarily flat or undulating, bordering a river, a lake, or the sea.

Texture, soil. The relative proportions of sand, silt, and clay particles in a mass of soil. The basic textural classes, in order of increasing proportion of fine particles, are *sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay,* and *clay*. The sand, loamy sand, and sandy loam classes may be further divided by specifying "coarse," "fine," or "very fine."

Thin layer (in tables). Otherwise suitable soil material that is too thin for the specified use.

Tilth, soil. The physical condition of the soil as related to tillage, seedbed preparation, seedling emergence, and root penetration.

Toeslope. The position that forms the gently inclined surface at the base of a hillslope. Toeslopes in profile are commonly gentle and linear and are constructional surfaces forming the lower part of a hillslope continuum that grades to valley or closed-depression floors.

Topsoil. The upper part of the soil, which is the most favorable material for plant growth. It is ordinarily rich in organic matter and is used to topdress roadbanks, lawns, and land affected by mining.

Tuff. A compacted deposit that is 50 percent or more volcanic ash and dust.

Variegation. Refers to patterns of contrasting colors assumed to be inherited from the parent material rather than to be the result of poor drainage.

Water bars. Smooth, shallow ditches or depressional areas that are excavated at an angle across a sloping road. They are used to reduce the downward velocity of water and divert it off and away from the road surface. Water bars can easily be driven over if constructed properly.

Weathering. All physical and chemical changes produced in rocks or other deposits at or near the earth's surface by atmospheric agents. These changes result in disintegration and decomposition of the material.

Well graded. Refers to soil material consisting of coarse grained particles that are well distributed over a wide range in size or diameter. Such soil normally can be easily increased in density and bearing properties by compaction. Contrasts with poorly graded soil.

Wilting point (or permanent wilting point). The moisture content of soil, on an ovendry basis, at which a plant (specifically a sunflower) wilts so much that it does not recover when placed in a humid, dark chamber.

Windthrow. The uprooting and tipping over of trees by the wind.

Tables

Table 1.--Temperature and Precipitation

(Recorded in the period 1961-90 at Denio Junction, Nevada)

Month	Temperature						Precipitation				
				2 years in 10 will have--				2 years in 10 will have--			
	Average daily maximum	Average daily minimum	Average daily	Maximum temperature higher than--	Minimum temperature lower than--	Average number of growing degree days*	Average	Less than--	More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	*°F*	*°F*	*°F*	*°F*	*Units*	*In*	*In*	*In*		*In*
January-----	41.5	19.6	30.6	59	-11	14	0.80	0.46	1.16	2	5.1
February----	48.1	24.7	36.4	66	-3	41	0.79	0.31	1.19	2	3.1
March-------	53.8	27.0	40.4	72	8	89	1.06	0.47	1.57	3	2.9
April-------	62.2	30.5	46.3	83	13	212	0.89	0.35	1.34	2	0.6
May---------	72.4	37.7	55.1	93	20	465	0.86	0.21	1.44	2	0.2
June--------	81.8	45.9	63.9	100	29	708	0.90	0.31	1.59	2	0.2
July--------	91.8	52.1	71.9	103	35	972	0.27	0.12	0.53	0	0
August------	89.7	51.0	70.3	103	35	941	0.48	0.16	1.13	1	0
September---	79.0	41.1	60.0	97	23	590	0.59	0.33	1.13	1	0
October-----	66.9	32.5	49.7	87	12	310	0.56	0.23	0.97	1	0.3
November----	51.7	25.8	38.7	72	2	74	1.11	0.39	1.71	4	4.1
December----	42.2	20.1	31.2	59	-11	15	0.78	0.33	1.27	3	6.0
Yearly:											
Average----	65.1	34.0	49.5	---	---	---	---	---	---	---	---
Extreme----	107.0	-25.0	---	108	-15	---	---	---	---	---	---
Total------	---	---	---	---	---	4,431	9.10	5.07	10.83	23	22.5

Average number of days per year with at least 1 inch of snow on the ground: 12

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

(Recorded in the period 1961-90 at P Ranch Refuge, Oregon)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	41.5	19.8	30.7	61	-11	22	1.05	0.44	1.56	3	4.4
February----	47.8	24.2	36.0	65	-2	39	0.84	0.32	1.32	2	1.9
March-------	53.3	26.5	39.9	72	6	81	1.18	0.56	1.71	3	2.0
April-------	60.7	30.7	45.7	83	14	184	1.08	0.44	1.63	3	1.2
May---------	68.5	37.4	52.9	89	22	399	1.27	0.58	1.87	3	0.3
June--------	76.9	43.7	60.3	94	30	584	1.18	0.50	1.84	3	0
July--------	85.5	46.6	66.1	97	33	762	0.39	0.09	0.70	1	0
August------	85.2	44.7	64.9	98	31	711	0.74	0.32	1.52	2	0
September---	77.5	36.4	57.0	94	19	465	0.76	0.26	1.34	2	0
October-----	66.8	30.0	48.4	88	10	266	0.90	0.24	1.61	2	0.3
November----	50.9	26.6	38.7	72	3	74	1.36	0.66	1.97	4	1.8
December----	42.0	21.0	31.5	61	-10	29	1.14	0.35	1.79	4	4.0
Yearly:											
Average----	63.1	32.3	47.7	---	---	---	---	---	---	---	---
Extreme----	103.0	-32.0	---	99	-16	---	---	---	---	---	---
Total------	---	---	---	---	---	3,615	11.90	8.57	13.76	32	15.9

Average number of days per year with at least 1 inch of snow on the ground: 10

See footnote at end of table.

Table 1.--Temperature and Precipitation--Continued

(Recorded in the period 1961-90 at Northern Great Basin Range Experiment Station, Oregon)

Month	Temperature						Precipitation				
	Average daily maximum	Average daily minimum	Average daily	2 years in 10 will have-- Maximum temperature higher than--	2 years in 10 will have-- Minimum temperature lower than--	Average number of growing degree days*	Average	2 years in 10 will have-- Less than--	2 years in 10 will have-- More than--	Average number of days with 0.10 inch or more	Average snowfall
	°F	°F	°F	°F	°F	Units	In	In	In		In
January-----	35.3	17.9	26.6	52	-6	2	1.22	0.69	1.70	4	10.9
February----	41.5	22.7	32.1	58	-1	12	0.73	0.30	1.10	4	4.6
March-------	46.9	25.4	36.1	67	9	41	0.86	0.32	1.32	3	4.9
April-------	55.7	29.6	42.6	79	13	142	0.74	0.28	1.12	3	1.6
May---------	64.0	35.9	49.9	86	20	312	1.10	0.59	1.55	3	0.5
June--------	74.2	44.1	59.1	93	28	565	0.91	0.32	1.40	3	0
July--------	83.0	50.1	66.6	97	33	811	0.40	0.09	0.69	1	0
August------	82.5	49.7	66.1	98	34	794	0.73	0.12	1.28	2	0
September---	73.2	42.3	57.8	92	25	524	0.65	0.23	1.13	1	0
October-----	61.8	34.5	48.1	83	16	271	0.76	0.20	1.26	2	0.8
November----	45.9	26.6	36.2	68	7	46	1.25	0.60	1.82	5	5.2
December----	36.9	20.0	28.5	55	-5	6	1.20	0.46	1.82	4	11.0
Yearly:											
Average----	58.4	33.2	45.8	---	---	---	---	---	---	---	---
Extreme----	104.0	-20.0	---	99	-11	---	---	---	---	---	---
Total------	---	---	---	---	---	3,526	10.56	7.53	11.39	35	39.7

Average number of days per year with at least 1 inch of snow on the ground: 48

* A growing degree day is a unit of heat available for plant growth. It can be calculated by adding the maximum and minimum daily temperatures, dividing the sum by 2, and subtracting the temperature below which growth is minimal for the principal crops in the area (40 degrees F).

Table 2.--Freeze Dates in Spring and Fall

(Recorded in the period 1961-90 at Denio Junction, Nevada; P Ranch Refuge, Oregon; and Northern Great Basin Range Experiment Station, Oregon)

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
DENIO JUNCTION:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 20	June 5	June 28
2 years in 10 later than--	May 14	May 29	June 22
5 years in 10 later than--	May 4	May 17	June 9
First freezing temperature in fall:			
1 year in 10 earlier than--	September 21	September 11	August 30
2 years in 10 earlier than--	September 27	September 17	September 4
5 years in 10 earlier than--	October 8	September 28	September 13
P RANCH REFUGE:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 14	May 31	June 2
2 years in 10 later than--	May 8	May 26	June 23
5 years in 10 later than--	April 28	May 27	June 7
First freezing temperature in fall:			
1 year in 10 earlier than--	September 11	September 2	August 21
2 years in 10 earlier than--	September 17	September 5	August 26
5 years in 10 earlier than--	September 30	September 13	September 3

Table 2.--Freeze Dates in Spring and Fall--Continued

Probability	Temperature		
	24 °F or lower	28 °F or lower	32 °F or lower
NORTHERN GREAT BASIN RANGE EXPERIMENT STATION:			
Last freezing temperature in spring:			
1 year in 10 later than--	May 29	June 9	July 9
2 years in 10 later than--	May 22	June 4	July 3
5 years in 10 later than--	May 9	May 25	June 20
First freezing temperature in fall:			
1 year in 10 earlier than--	September 28	September 15	August 22
2 years in 10 earlier than--	October 6	September 23	August 29
5 years in 10 earlier than--	October 20	October 7	September 13

Table 3.--Growing Season

(Recorded in the period 1961-90 at Denio Junction, Nevada; P Ranch Refuge, Oregon; and Northern Great Basin Range Experiment Station, Oregon)

Probability	Daily minimum temperature during growing season		
	Higher than 24 °F	Higher than 28 °F	Higher than 32 °F
	Days	*Days*	*Days*
DENIO JUNCTION:			
9 years in 10	133	113	71
8 years in 10	141	120	80
5 years in 10	156	133	98
2 years in 10	172	146	115
1 year in 10	180	153	124
P RANCH REFUGE:			
9 years in 10	123	100	66
8 years in 10	132	107	75
5 years in 10	151	120	92
2 years in 10	170	133	110
1 year in 10	180	139	119
NORTHERN GREAT BASIN RANGE EXPERIMENT STATION:			
9 years in 10	132	108	58
8 years in 10	143	117	68
5 years in 10	163	134	87
2 years in 10	183	151	106
1 year in 10	194	160	116

Table 4.--Acreage and Proportionate Extent of the Soils

Map symbol	Soil name	Acres	Percent
1	Actem cobbly loam, 2 to 20 percent slopes	206,118	3.4
2	Actem extremely cobbly loam, low precipitation, 2 to 15 percent slopes	3,770	*
3	Actem-Robson complex, 2 to 20 percent slopes	8,055	0.1
4	Alvodest silty clay loam, 0 to 3 percent slopes	56,120	0.9
5	Alvodest-Playas complex, 0 to 2 percent slopes	7,148	0.1
6	Alyan gravelly sandy loam, 3 to 15 percent slopes	2,839	*
7	Anatone very stony loam, 2 to 12 percent slopes	6,706	0.1
8	Anatone complex, 2 to 30 percent slopes	5,738	*
9	Anatone-Teguro-Observation complex, 2 to 20 percent slopes	2,225	*
10	Anatone-Egyptcreek-Rock outcrop association, 20 to 50 percent slopes	10,851	0.2
11	Anatone-Minam-Rock outcrop association, 2 to 50 percent slopes	1,455	*
12	Anatone-Teguro-Rock outcrop association, 2 to 40 percent slopes	846	*
13	Anatone-Westbutte-Rock outcrop association, 20 to 60 percent slopes	17,095	0.3
14	Anawalt gravelly clay loam, 0 to 12 percent slopes	115,485	1.9
15	Anawalt-Lonely complex, 5 to 30 percent slopes	42,357	0.7
16	Anawalt-Oreneva complex, 0 to 12 percent slopes	46,928	0.8
17	Anawalt-Raz complex, 2 to 10 percent slopes	120,887	2.0
18	Ateron gravelly loam, 2 to 20 percent slopes	2,543	*
19	Ateron-Rubble land complex, 2 to 35 percent slopes	6,162	0.1
20	Ateron-Observation association, 5 to 30 percent slopes	7,895	0.1
21	Atlow very stony loam, 5 to 30 percent slopes	12,984	0.2
22	Atlow-Rock outcrop complex, 5 to 30 percent slopes	9,751	0.2
23	Atlow-Rock outcrop complex, 30 to 50 percent slopes	6,788	0.1
24	Atlow-Skedaddle complex, 5 to 30 percent slopes	36,235	0.6
25	Ausmus fine sandy loam, 0 to 1 percent slopes	19,598	0.3
26	Ausmus fine sandy loam, 0 to 1 percent slopes, flooded	27,842	0.5
27	Baconcamp stony clay loam, 15 to 30 percent north slopes	1,627	*
28	Baconcamp-Clamp complex, 5 to 20 percent slopes	30,162	0.5
29	Baconcamp-Clamp complex, 30 to 50 percent north slopes	14,669	0.2
30	Baconcamp-Clamp-Rock outcrop complex, 50 to 70 percent north slopes	9,325	0.2
31	Baconcamp-Rock outcrop complex, 3 to 30 percent slopes	42,639	0.7
32	Baconcamp-Rock outcrop complex, 30 to 70 percent north slopes	12,424	0.2
33	Baconcamp-Rock outcrop-Hackwood complex, 30 to 80 percent slopes	10,671	0.2
34	Baconcamp-Hapgood-Rock outcrop association, 15 to 50 percent slopes	1,124	*
35	Baconcamp-Krackle-Rock outcrop association, 25 to 65 percent slopes	6,070	0.1
36	Berdugo silt loam, 0 to 3 percent slopes	17,516	0.3
37	Berdugo-Catlow complex, 0 to 5 percent slopes	26,984	0.4
38	Bigfrog-Brock complex, 8 to 40 percent slopes	6,434	0.1
39	Bocker-Westbutte complex, 5 to 25 percent slopes	32,774	0.5
40	Boravall-Playas complex, 0 to 3 percent slopes	8,000	0.1
41	Borobey sandy loam, 2 to 15 percent slopes	4,745	*
42	Boulder Lake clay, 0 to 2 percent slopes	8,976	0.1
43	Boulder Lake-Merlin complex, 0 to 3 percent slopes	1,370	*
44	Boulder Lake-Spangenburg complex, 0 to 2 percent slopes	12,271	0.2
45	Brabble-Calderwood complex, 5 to 25 percent slopes	16,262	0.3
46	Brace-Coztur-Rock outcrop complex, 2 to 20 percent slopes	13,175	0.2
47	Brace-Vergas complex, 2 to 20 percent slopes	13,274	0.2
48	Bruncan complex, 0 to 5 percent slopes	11,567	0.2
49	Brunzell gravelly loam, 0 to 2 percent slopes	943	*
50	Bucklake very stony clay loam, 20 to 50 percent north slopes	1,526	*
51	Bucklake-Mahoon-Rubble land complex, 20 to 40 percent slopes	5,490	*
52	Calderwood very gravelly loam, 5 to 25 percent slopes	11,383	0.2
53	Calderwood-McConnel complex, 0 to 20 percent slopes	6,000	*
54	Carryback silty clay loam, 2 to 20 percent slopes	22,209	0.4
55	Carryback cobbly clay loam, 5 to 20 percent slopes	26,926	0.4
56	Carryback very stony clay loam, 2 to 20 percent slopes	2,125	*
57	Carryback very gravelly loam, low elevation, 3 to 20 percent slopes	83,108	1.4
58	Carryback complex, 2 to 20 percent slopes	59,949	1.0
59	Carryback complex, 20 to 40 percent slopes	13,786	0.2
60	Carryback complex, low elevation, 20 to 40 percent slopes	20,032	0.3
61	Carryback-Pearlwise complex, 3 to 15 percent slopes	13,399	0.2
62	Carryback-Pearlwise-Rock outcrop complex, 25 to 50 percent north slopes	5,433	*
63	Carryback-Dickle association, 12 to 35 percent north slopes	2,257	*
64	Carvix silt loam, 0 to 5 percent slopes	24,974	0.4
65	Clamp-Baconcamp-Hackwood complex, 20 to 35 percent north slopes	7,172	0.1
66	Coztur sandy loam, 2 to 15 percent slopes	124,044	2.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
67	Crowcamp loam, 0 to 1 percent slopes	6,079	0.1
68	Crowcamp-Ausmus-Poujade complex, 0 to 5 percent slopes	33,825	0.6
69	Davey sandy loam, 0 to 8 percent slopes	18,410	0.3
70	Davey-Oreanna complex, 0 to 8 percent slopes	5,366	*
71	Defenbaugh loam, 0 to 2 percent slopes	6,073	0.1
72	Deppy very gravelly loam, 5 to 15 percent slopes	10,098	0.2
73	Deppy-Tumtum complex, 5 to 15 percent slopes	73,598	1.2
74	Dickle very cobbly clay loam, 3 to 12 percent slopes	4,697	*
75	Dixon gravelly fine sandy loam, 0 to 5 percent slopes	1,144	*
76	Dixon gravelly fine sandy loam, alkali, 0 to 2 percent slopes	3,840	*
77	Dixon gravelly sandy clay loam, 3 to 15 percent slopes	8,983	0.1
78	Dixon-Droval complex, 0 to 2 percent slopes	6,363	0.1
79	Dogmountain gravelly loam, 4 to 20 percent slopes	6,967	0.1
80	Doyn very stony loam, 2 to 20 percent slopes	11,046	0.2
81	Doyn-Merlin complex, 2 to 20 percent slopes	23,122	0.4
82	Doyn-Arcia association, 2 to 30 percent slopes	27,909	0.5
83	Drewsey very fine sandy loam, 1 to 5 percent slopes	208	*
84	Drewsey very fine sandy loam, 2 to 20 percent slopes	3,038	*
85	Drewsey-Torriorthents-Gumble complex, 2 to 40 percent slopes	4,153	*
86	Droval loam, 0 to 3 percent slopes	26,285	0.4
87	Duff loam, 3 to 12 percent slopes	3,331	*
88	Duff-Clamp complex, 5 to 20 percent slopes	19,177	0.3
89	Duff-Clamp complex, 20 to 40 percent north slopes	4,775	*
90	Duff-Hackwood complex, 2 to 30 percent slopes	3,244	*
91	Edemaps loam, 5 to 20 percent slopes	16,792	0.3
92	Edemaps-Carryback association, 2 to 10 percent slopes	9,014	0.1
93	Enko loamy sand, 2 to 8 percent slopes	33,919	0.6
94	Enko-Catlow complex, 1 to 7 percent slopes	52,555	0.9
95	Enko-Catlow complex, 7 to 15 percent slopes	1,826	*
96	Enko-Catlow association, 2 to 20 percent slopes	27,998	0.5
97	Erakatak extremely stony silty clay loam, 50 to 80 percent north slopes	4,368	*
98	Erakatak-Lambring-Rock outcrop complex, 20 to 60 percent north slopes	240	*
99	Erakatak-Merlin-Westbutte complex, 10 to 60 percent slopes	11,732	0.2
100	Erakatak-Rock outcrop complex, 20 to 60 percent slopes	909	*
101	Erakatak-Ninemile-Hapgood association, 5 to 40 percent slopes	6,921	0.1
102	Felcher extremely stony clay loam, 20 to 40 percent south slopes	34,227	0.6
103	Felcher-Rock outcrop complex, 40 to 70 percent south slopes	72,388	1.2
104	Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes	4,397	*
105	Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes	2,352	*
106	Felcher-Sagehen complex, 5 to 30 percent slopes	6,791	0.1
107	Felcher-Sagehen complex, 40 to 70 percent south slopes	6,374	0.1
108	Felcher-Fitzwater-Rock outcrop association, 20 to 60 percent slopes	24,824	0.4
109	Felcher-Pernty-Ninemile association, 10 to 35 percent slopes	1,847	*
110	Felcher-Westbutte association, 20 to 40 percent slopes	21,835	0.4
111	Final silt loam, 0 to 2 percent slopes	867	*
112	Fitzwater-Hapgood association, 20 to 40 percent slopes	5,103	*
113	Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes	9,016	0.1
114	Flank-Lava flows complex, 1 to 40 percent slopes	1,382	*
115	Fourwheel stony loam, 3 to 12 percent slopes	956	*
116	Fourwheel extremely cobbly loam, 20 to 40 percent north slopes	1,041	*
117	Freznik very stony silt loam, 2 to 15 percent slopes	9,230	0.2
118	Fury silt loam, 0 to 1 percent slopes	19,176	0.3
119	Fury silt loam, 0 to 1 percent slopes, ponded	1,188	*
120	Fury-Degarmo complex, 0 to 2 percent slopes	14,198	0.2
121	Fury-Housefield complex, 0 to 1 percent slopes	9,860	0.2
122	Fury-Housefield-Skidoosprings complex, 0 to 2 percent slopes	6,785	0.1
123	Fury-Opie complex, 0 to 1 percent slopes	12,420	0.2
124	Fury-Skidoosprings-Opie complex, 0 to 2 percent slopes	42,493	0.7
125	Fury-Widowspring complex, 0 to 2 percent slopes	14,817	0.2
126	Gaib gravelly loam, 2 to 20 percent slopes	12,643	0.2
127	Gaib-Ateron complex, 2 to 15 percent slopes	2,530	*
128	Gaib-Rock outcrop complex, 20 to 60 percent slopes	6,242	0.1
129	Gilispie-Noname complex, 3 to 15 percent slopes	10,300	0.2
130	Gochea sandy loam, 0 to 2 percent slopes	3,971	*
131	Goldrun-Alvodest complex, 0 to 12 percent slopes	32,217	0.5
132	Gradon gravelly fine sandy loam, 0 to 8 percent slopes	11,245	0.2

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
133	Guano gravelly sandy loam, 2 to 15 percent slopes	11,475	0.2
134	Gumble very gravelly silt loam, 2 to 20 percent slopes	735	*
135	Gumble very stony loam, 20 to 40 percent south slopes	3,314	*
136	Gumble-Mahoon-Cagle complex, 2 to 40 percent slopes	14,868	0.2
137	Hackwood gravelly loam, 20 to 35 percent slopes	10,891	0.2
138	Hackwood-Baconcamp complex, 20 to 35 percent north slopes	17,653	0.3
139	Hapgood very cobbly loam, 2 to 12 percent slopes	6,235	0.1
140	Hart Camp cobbly loam, 5 to 15 percent slopes	6,743	0.1
141	Hart Camp cobbly loam, 15 to 30 percent slopes	4,551	*
142	Helphenstein-Goldrun complex, 0 to 15 percent slopes	552	*
143	Homefield mucky silt loam, 0 to 1 percent slopes	2,909	*
144	Housefield mucky silt loam, 0 to 1 percent slopes	2,120	*
145	Housefield-Doubleo complex, 0 to 1 percent slopes	5,295	*
146	Icene-Playas complex, 0 to 1 percent slopes	7,161	0.1
147	Icene-Playas complex, slightly alkaline, 0 to 1 percent slopes	6,656	0.1
148	Jesse Camp silt loam, 2 to 5 percent slopes	45	*
149	Jimgreen muck, 0 to 1 percent slopes	1,115	*
150	Jimgreen-Housefield complex, 0 to 1 percent slopes	2,702	*
151	Kegler fine sandy loam, 2 to 5 percent slopes	12,410	0.2
152	Kerrfield loam, 3 to 20 percent slopes	20,376	0.3
153	Klicker very gravelly loam, 35 to 60 percent north slopes	799	*
154	Klicker extremely cobbly loam, 15 to 35 percent north slopes	2,926	*
155	Krackle complex, 20 to 40 percent slopes	8,576	0.1
156	Krackle-Baconcamp-Rock outcrop complex, 3 to 30 percent slopes	6,141	0.1
157	Krackle-Baconcamp-Rock outcrop complex, high precipitation, 3 to 30 percent slopes	2,946	*
158	Krackle-Rock outcrop complex, 25 to 50 percent south slopes	1,656	*
159	Krackle-Baconcamp-Hackwood association, 20 to 35 percent slopes	2,117	*
160	Ladycomb cobbly clay loam, 8 to 25 percent slopes	4,165	*
161	Lambranch gravelly loam, 2 to 8 percent slopes	766	*
162	Lambring-Egyptcreek-Rock outcrop complex, 20 to 60 percent slopes	3,139	*
163	Lambring-Rock outcrop complex, 30 to 70 percent north slopes	2,720	*
164	Lambring-Rubble land complex, 30 to 50 percent slopes	783	*
165	Langslet silty clay, 0 to 2 percent slopes	3,738	*
166	Lava flows	3,947	*
167	Lava flows-Flank complex, 1 to 40 percent slopes	3,410	*
168	Lawen fine sandy loam, 2 to 5 percent slopes	37,646	0.6
169	Leathers silt loam, 0 to 2 percent slopes	580	*
170	Leathers silt loam, 1 to 3 percent slopes	7,678	0.1
171	Leemorris-Buckwilder complex, 3 to 15 percent slopes	10,436	0.2
172	Leemorris-Buckwilder complex, 15 to 35 percent slopes	5,291	*
173	Legler silty clay loam, 0 to 3 percent slopes	7,803	0.1
174	Locane very cobbly loam, 5 to 25 percent slopes	728	*
175	Lolak very fine sandy loam, 0 to 1 percent slopes	6,862	0.1
176	Lolak-Ausmus complex, 0 to 1 percent slopes	12,064	0.2
177	Lonely-Doyn association, 2 to 20 percent slopes	22,232	0.4
178	Lonely-Robson association, 5 to 25 percent slopes	108,391	1.8
179	Longcreek-Cleavage complex, 20 to 50 percent slopes	1,466	*
180	Longcreek-Rock outcrop complex, 40 to 70 percent south slopes	1,533	*
181	Loupence silt loam, 0 to 2 percent slopes	15,453	0.3
182	Madeline very stony loam, 15 to 40 percent south slopes	13,042	0.2
183	Madeline very stony loam, 20 to 60 percent north slopes	747	*
184	Madeline-Ninemile complex, 15 to 35 percent slopes	5,041	*
185	Madeline-Rock outcrop complex, 40 to 70 percent slopes	407	*
186	Mahoon very cobbly loam, 2 to 20 percent slopes	5,129	*
187	Mahoon-Brezniak-Longcreek complex, 2 to 20 percent slopes	14,263	0.2
188	Mahoon-Cagle complex, 10 to 40 percent slopes	3,228	*
189	Mahoon-Risley complex, 2 to 20 percent slopes	4,799	*
190	Mahoon-Cotant association, 15 to 30 percent slopes	6,993	0.1
191	Mcbain-Ausmus complex, 0 to 2 percent slopes	4,338	*
192	McConnel cobbly sandy loam, 3 to 8 percent slopes	25,435	0.4
193	Merlin very stony loam, 2 to 15 percent slopes	30,091	0.5
194	Merlin complex, 2 to 20 percent slopes	8,955	0.1
195	Merlin-Ateron complex, 2 to 20 percent slopes	4,991	*
196	Merlin-Ateron-Rubble land complex, 2 to 20 percent slopes	27,278	0.5
197	Merlin-Ateron-Ticino complex, 2 to 20 percent slopes	8,597	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
198	Merlin-Erakatak-Teguro complex, 2 to 20 percent slopes	2,299	*
199	Merlin-Observation complex, 2 to 20 percent slopes	49,628	0.8
200	Merlin-Observation complex, 20 to 40 percent north slopes	6,310	0.1
201	Merlin-Rubble land complex, 2 to 15 percent slopes	16,594	0.3
202	Merlin-Teguro complex, 2 to 15 percent slopes	12,290	0.2
203	Merlin-Teguro complex, moist, 2 to 20 percent slopes	19,470	0.3
204	Mesman loamy fine sand, 0 to 5 percent slopes	3,510	*
205	Mesman fine sandy loam, 0 to 5 percent slopes	7	*
206	Mesman-Norad complex, 0 to 2 percent slopes	5,617	*
207	Middlebox gravelly sandy loam, 5 to 20 percent slopes	23,754	0.4
208	Middlebox complex, 15 to 40 percent slopes	3,622	*
209	Minam silt loam, 0 to 2 percent slopes	1,411	*
210	Minam-Welch complex, 0 to 3 percent slopes	354	*
211	Modoc gravelly sandy loam, 2 to 15 percent slopes	3,992	*
212	Morfitt loam, 0 to 2 percent slopes	582	*
213	Morganhills sandy loam, 2 to 12 percent slopes	17,310	0.3
214	Morganhills complex, 2 to 35 percent slopes	5,957	*
215	Mound stony loam, 2 to 20 percent slopes	2,376	*
216	Nevador very gravelly sandy loam, 3 to 12 percent slopes	11,508	0.2
217	Ninemile gravelly loam, hummocky, 0 to 8 percent slopes	79,911	1.3
218	Ninemile very cobbly clay loam, low precipitation, 2 to 30 percent slopes	30,166	0.5
219	Ninemile very stony clay loam, 0 to 20 percent slopes	43,100	0.7
220	Ninemile-Carvix complex, 0 to 8 percent slopes	3,439	*
221	Ninemile-Doyn complex, 2 to 20 percent slopes	1,450	*
222	Ninemile-Edemaps complex, 2 to 10 percent slopes	19,658	0.3
223	Ninemile-Madeline complex, 2 to 15 percent slopes	1,491	*
224	Ninemile-Pearlwise complex, 20 to 35 percent slopes	4,816	*
225	Ninemile-Reluctan complex, 0 to 15 percent slopes	64,585	1.1
226	Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes	42,248	0.7
227	Ninemile-Rock outcrop complex, 40 to 70 percent south slopes	69	*
228	Ninemile-Rubble land complex, 5 to 20 percent slopes	14,673	0.2
229	Ninemile-Westbutte complex, 2 to 15 percent slopes	11,684	0.2
230	Ninemile-Westbutte-Ninemile complex, 2 to 30 percent slopes	17,824	0.3
231	Ninemile association, 2 to 12 percent slopes	80,891	1.3
232	Ninemile-Felcher association, 5 to 30 percent slopes	6,098	0.1
233	Noname-Dickle complex, 3 to 12 percent slopes	1,914	*
234	Noname-Duff-Rock outcrop complex, 20 to 80 percent slopes	6,534	0.1
235	Norad silt loam, 0 to 1 percent slopes	35,995	0.6
236	Norad-Spangenburg complex, 0 to 2 percent slopes	1,688	*
237	Nuss stony loam, 20 to 40 percent south slopes	2,906	*
238	Nuss-Merlin complex, 20 to 40 percent north slopes	1,911	*
239	Nuss-Rock outcrop complex, 20 to 40 percent south slopes	5,278	*
240	Observation stony loam, 2 to 20 percent slopes	3,608	*
241	Observation-Rock outcrop complex, 5 to 20 percent slopes	8,648	0.1
242	Observation-Royst-Merlin complex, 2 to 30 percent slopes	8,024	0.1
243	Observation-Teguro complex, 2 to 20 percent slopes	3,392	*
244	Observation-Lambring-Rock outcrop association, 20 to 50 percent slopes	17,040	0.3
245	Olac-Atlow complex, 2 to 10 percent slopes	461	*
246	Opie silt loam, 0 to 1 percent slopes	3,085	*
247	Oreneva gravelly loam, 0 to 12 percent slopes	5,921	*
248	Outerkirk sandy loam, 1 to 4 percent slopes	13,383	0.2
249	Outerkirk sandy loam, silty substratum, 2 to 6 percent slopes	5,334	*
250	Outerkirk-Defenbaugh association, 1 to 4 percent slopes	30,051	0.5
251	Ozamis silt loam, 0 to 1 percent slopes	11,194	0.2
252	Pearlwise stony loam, 30 to 65 percent north slopes	2,040	*
253	Pernty gravelly silt loam, 3 to 15 percent slopes	18,882	0.3
254	Pernty gravelly silt loam, 15 to 40 percent slopes	4,634	*
255	Pernty cobbly loam, 30 to 50 percent north slopes	11,426	0.2
256	Pernty-Rock outcrop complex, 30 to 70 percent south slopes	54,848	0.9
257	Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes	12,807	0.2
258	Pits	142	*
259	Playas	43,759	0.7
260	Playas-Thenarrows complex, 0 to 2 percent slopes	5,260	*
261	Poall silt loam, 2 to 20 percent slopes	8,407	0.1
262	Poall-Gumble complex, 2 to 20 percent slopes	11,114	0.2
263	Pomerening very gravelly loamy sand, 2 to 20 percent slopes	4,569	*

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
264	Pomerening-Flank-Lava flows complex, 2 to 20 percent slopes	2,802	*
265	Porterfield loam, 2 to 20 percent slopes	4,493	*
266	Porterfield very stony loam, 20 to 40 percent south slopes	2,502	*
267	Porterfield-Tincan-Rock outcrop association, 20 to 60 percent slopes	7,377	0.1
268	Poujade very fine sandy loam, 0 to 2 percent slopes	16,780	0.3
269	Poujade very fine sandy loam, 2 to 5 percent slopes	51,677	0.9
270	Poujade-Ausmus complex, 0 to 2 percent slopes	12,583	0.2
271	Raz cobbly fine sandy loam, 1 to 10 percent slopes	1,849	*
272	Raz-Brace complex, 2 to 20 percent slopes	559,766	9.3
273	Raz-Brace complex, low precipitation, 2 to 20 percent slopes	62,443	1.0
274	Reallis sandy loam, 3 to 8 percent slopes	24,880	0.4
275	Reallis fine sandy loam, 0 to 3 percent slopes	36,030	0.6
276	Reese loam, 0 to 1 percent slopes	528	*
277	Reluctan loam, 2 to 20 percent slopes	14,699	0.2
278	Reluctan very stony silt loam, 2 to 20 percent slopes	12,907	0.2
279	Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes	12,190	0.2
280	Riddleranch-Rock outcrop complex, 20 to 70 percent south slopes	10,428	0.2
281	Rinconflat stony loam, 3 to 10 percent slopes	29,361	0.5
282	Rio King loam, 1 to 6 percent slopes	11,920	0.2
283	Rio King-Droval complex, 0 to 2 percent slopes	5,143	*
284	Risley-Gumble complex, 2 to 20 percent slopes	35,615	0.6
285	Risley-Gumble-Torriorthents complex, 2 to 25 percent slopes	23,045	0.4
286	Risley-Rock outcrop complex, 5 to 20 percent slopes	7,174	0.1
287	Robson-Anawalt complex, 2 to 15 percent slopes	18,741	0.3
288	Robson-Fourwheel complex, 3 to 30 percent slopes	89,716	1.5
289	Robson-Felcher association, 3 to 70 percent slopes	20,957	0.3
290	Roca very cobbly clay loam, 15 to 40 percent south slopes	19,135	0.3
291	Rock outcrop and Rubble land, 20 to 60 percent slopes	7,382	0.1
292	Rock outcrop-Baconcamp complex, 30 to 80 percent slopes	22,350	0.4
293	Royst-Merlin complex, 2 to 20 percent slopes	8,094	0.1
294	Rubble land-Nuss-Ateron association, 20 to 60 percent slopes	2,425	*
295	Sagehen-Rock outcrop complex, 5 to 30 percent slopes	9,870	0.2
296	Sagehen-Rock outcrop complex, 30 to 70 percent slopes	3,241	*
297	Sandgap sand, 3 to 8 percent slopes	5,255	*
298	Sandgap sand, 1 to 4 percent slopes, flooded	861	*
299	Seharney cobbly silt loam, 3 to 12 percent slopes	28,112	0.5
300	Skedaddle-Atlow-Rock outcrop complex, 5 to 30 percent slopes	36,459	0.6
301	Skedaddle-Atlow-Rock outcrop complex, 30 to 50 percent slopes	12,538	0.2
302	Skedaddle-Rock outcrop complex, 40 to 70 percent slopes	3,213	*
303	Skedaddle association, 30 to 50 percent slopes	8,127	0.1
304	Skidoosprings sandy loam, 0 to 3 percent slopes	10,670	0.2
305	Skidoosprings sandy loam, 0 to 1 percent slopes, flooded	140	*
306	Skunkfarm-Cumulic Haploxerolls complex, 0 to 2 percent slopes	2,905	*
307	Skunkfarm-Doubleo complex, 0 to 1 percent slopes	1,866	*
308	Skunkfarm-Mcbain-Doubleo complex, 0 to 2 percent slopes	10,425	0.2
309	Skunkfarm-Skidoosprings complex, 0 to 2 percent slopes	18,328	0.3
310	Spangenburg silty clay loam, 0 to 1 percent slopes	27,089	0.4
311	Spangenburg silty clay loam, moist, 0 to 1 percent slopes	20,898	0.3
312	Spangenburg silty clay loam, thick surface, 0 to 2 percent slopes	50,240	0.8
313	Srednic-Aval complex, 2 to 20 percent slopes	7,749	0.1
314	Stampede loam, 1 to 5 percent slopes	19,298	0.3
315	Swaler silt loam, 0 to 1 percent slopes	2,634	*
316	Swaler-Swalesilver association, 0 to 2 percent slopes	13,733	0.2
317	Swalesilver silt loam, 0 to 2 percent slopes	31,003	0.5
318	Swalesilver silt loam, dry, 0 to 2 percent slopes	5,105	*
319	Swalesilver silt loam, 0 to 1 percent slopes, flooded	2,542	*
320	Teguro gravelly loam, 5 to 20 percent slopes	1,510	*
321	Teguro very cobbly loam, 2 to 20 percent slopes	17,674	0.3
322	Teguro very stony loam, thin surface, 2 to 20 percent slopes	8,450	0.1
323	Teguro-Anatone complex, 2 to 20 percent slopes	1,992	*
324	Teguro-Ateron complex, 2 to 20 percent slopes	4,741	*
325	Thenarrows-Duckclub complex, 0 to 1 percent slopes	25,228	0.4
326	Thenarrows-Duckclub-Dentdraw complex, 0 to 2 percent slopes	3,559	*
327	Thenarrows-Duckclub-Sandgap complex, 0 to 4 percent slopes	6,377	0.1
328	Ticino-Merlin complex, 2 to 10 percent slopes	3,622	*
329	Ticino-Observation complex, 2 to 20 percent slopes	6,509	0.1

See footnote at end of table.

Table 4.--Acreage and Proportionate Extent of the Soils--Continued

Map symbol	Soil name	Acres	Percent
330	Ticino-Rock outcrop complex, 2 to 20 percent slopes	1,252	*
331	Toll sand, 2 to 15 percent slopes	3,871	*
332	Toll-Nevador complex, 0 to 15 percent slopes	2,678	*
333	Torriorthents-Gumble complex, 2 to 35 percent slopes	7,244	0.1
334	Tumtum cobbly loam, 4 to 15 percent slopes	35,609	0.6
335	Tumtum cobbly loam, high precipitation, 2 to 8 percent slopes	647	*
336	Turpin sandy clay loam, 0 to 1 percent slopes	214	*
337	Vanwyper-Rock outcrop complex, 45 to 80 percent north slopes	1,034	*
338	Vergas gravelly loam, 0 to 3 percent slopes	51,306	0.9
339	Vil silt loam, 2 to 20 percent slopes	8,012	0.1
340	Vining loam, 2 to 20 percent slopes	4,139	*
341	Vining-Tuffo complex, 5 to 30 percent slopes	15,574	0.3
342	Vitale very stony loam, 5 to 20 percent slopes	12,029	0.2
343	Vitale-Merlin complex, 2 to 20 percent slopes	34,148	0.6
344	Vitale-Merlin-Doyn complex, 2 to 20 percent slopes	23,952	0.4
345	Vitale-Observation complex, 2 to 20 percent slopes	3,481	*
346	Vitale-Rock outcrop complex, 20 to 60 percent south slopes	2,261	*
347	Voltage silt loam, 0 to 2 percent slopes	832	*
348	Voltage-Crowcamp complex, 0 to 2 percent slopes	13,189	0.2
349	Voltage-Crowcamp complex, 0 to 2 percent slopes, flooded	2,405	*
350	Voltage-Widowspring complex, 0 to 2 percent slopes	7,920	0.1
351	Wagontire gravelly clay loam, 2 to 20 percent slopes	3,739	*
352	Wagontire-Vil complex, 2 to 20 percent slopes	1,839	*
353	Waspo-Poall complex, 2 to 8 percent slopes	554	*
354	Water	65,584	1.1
355	Welch silt loam, cold, 0 to 5 percent slopes	255	*
356	Welch silt loam, cool, 0 to 5 percent slopes	1,051	*
357	Welch-Roschene-Cumulic Haploxerolls complex, 0 to 3 percent slopes	8,981	0.1
358	Wenas-Loupence-Cumulic Haploxerolls complex, 0 to 3 percent slopes	4,581	*
359	Westbutte very stony loam, 20 to 50 percent north slopes	2,118	*
360	Westbutte extremely stony loam, 5 to 25 percent slopes	5,888	*
361	Westbutte-Bocker complex, 20 to 60 percent slopes	4,394	*
362	Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes	65,659	1.1
363	Westbutte-Rock outcrop complex, 20 to 60 percent north slopes	17,788	0.3
364	Westbutte-Rock outcrop complex, 20 to 60 percent south slopes	13,704	0.2
365	Westbutte-Lambring-Rock outcrop association, 20 to 60 percent slopes	46,176	0.8
366	Westbutte-Lambring-Rock outcrop association, cool, 20 to 60 percent slopes	8,827	0.1
367	Westbutte-Lambring-Rock outcrop association, moist, 20 to 60 percent slopes	7,074	0.1
368	Westbutte-Observation association, 5 to 40 percent slopes	12,542	0.2
369	Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes	5,838	*
370	Widowspring silt loam, 0 to 2 percent slopes	19,398	0.3
371	Windybutte silt loam, 2 to 5 percent slopes	13,622	0.2
372	Wolverine fine sand, 2 to 15 percent slopes	3,873	*
373	Denied access	2,254	*
	Total	6,032,528	100.0

* Less than 0.1 percent.

Table 5.--Land Capability and Yields per Acre of Crops and Pasture

(The "N" column is for nonirrigated areas; the "I" columns are for irrigated areas. Yields are those that can be expected under a high level of management. Absence of a yield indicates that the soil is not suited to the crop or the crop generally is not grown on the soil)

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
1:					
Actem	6e	---	---	---	---
2:					
Actem	7s	---	---	---	---
3:					
Actem	6e	---	---	---	---
Robson	7s	---	---	---	---
4:					
Alvodest	6s	---	---	---	---
5:					
Alvodest	6s	---	---	---	---
Playas	8	---	---	---	---
6:					
Alyan	6e	---	---	---	---
7:					
Anatone	7s	---	---	---	---
8:					
Anatone, moist	7s	---	---	---	---
Anatone	7s	---	---	---	---
9:					
Anatone	7s	---	---	---	---
Teguro	6e	---	---	---	---
Observation	4e	---	---	---	---
10:					
Anatone, moist	7s	---	---	---	---
Egyptcreek	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
11:					
Anatone, moist	7s	---	---	---	---
Minam	4e	---	---	---	---
Rock outcrop	8	---	---	---	---
12:					
Anatone	7s	---	---	---	---
Teguro	6e	---	---	---	---
Rock outcrop	8	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
13:					
Anatone	7s	---	---	---	---
Westbutte	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
14:					
Anawalt	6e	---	---	---	---
15:					
Anawalt	6e	---	---	---	---
Lonely	6e	---	---	---	---
16:					
Anawalt	6e	---	---	---	---
Oreneva	6e	---	---	---	---
17:					
Anawalt	6e	---	---	---	---
Raz	6e	---	---	---	---
18:					
Ateron	7s	---	---	---	---
19:					
Ateron	7s	---	---	---	---
Rubble land	8	---	---	---	---
20:					
Ateron	7s	---	---	---	---
Observation	6s	---	---	---	---
21:					
Atlow	7s	---	---	---	---
22:					
Atlow	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
23:					
Atlow	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
24:					
Atlow	7s	---	---	---	---
Skedaddle	7s	---	---	---	---
25:					
Ausmus	6s	6s	4.00	1.00	---
26:					
Ausmus	6s	---	---	---	---
27:					
Baconcamp	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
28:					
Baconcamp	6e	---	---	---	---
Clamp	7s	---	---	---	---
29:					
Baconcamp	6e	---	---	---	---
Clamp	7s	---	---	---	---
30:					
Baconcamp	7e	---	---	---	---
Clamp	7e	---	---	---	---
Rock outcrop	8	---	---	---	---
31:					
Baconcamp	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
32:					
Baconcamp	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
33:					
Baconcamp	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
Hackwood	6e	---	---	---	---
34:					
Baconcamp	6e	---	---	---	---
Hapgood	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
35:					
Baconcamp	6e	---	---	---	---
Krackle	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
36:					
Berdugo	6s	---	---	---	---
37:					
Berdugo	6e	---	---	---	---
Catlow	6e	---	---	---	---
38:					
Bigfrog	6s	---	---	---	---
Brock	6s	---	---	---	---
39:					
Bocker	7s	---	---	---	---
Westbutte	7s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
40:					
Boravall	6s	---	---	---	---
Playas	8	---	---	---	---
41:					
Borobey	6e	---	---	---	---
42:					
Boulder Lake	6w	---	---	---	---
43:					
Boulder Lake	6w	---	---	---	---
Merlin	6e	---	---	---	---
44:					
Boulder Lake	6w	4w	1.00	---	---
Spangenburg	6s	3s	3.50	---	---
45:					
Brabble	6e	---	---	---	---
Calderwood	7s	---	---	---	---
46:					
Brace	6e	---	---	---	---
Coztur	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
47:					
Brace	6e	---	---	---	---
Vergas	6e	---	---	---	---
48:					
Bruncan, thick surface	6e	---	---	---	---
Bruncan, thin surface	6e	---	---	---	---
49:					
Brunzell	4s	---	---	---	---
50:					
Bucklake	6e	---	---	---	---
51:					
Bucklake	6e	---	---	---	---
Mahoon	6e	---	---	---	---
Rubble land	8	---	---	---	---
52:					
Calderwood	7s	---	---	---	---
53:					
Calderwood	7s	---	---	---	---
McConnel	6e	---	---	---	---
54:					
Carryback	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
55:					
Carryback	6e	---	---	---	---
56:					
Carryback	6e	---	---	---	---
57:					
Carryback	6e	---	---	---	---
58:					
Carryback, thin surface	6e	---	---	---	---
Carryback, thick surface	6e	---	---	---	---
59:					
Carryback, thin surface	6e	---	---	---	---
Carryback, south slopes	6e	---	---	---	---
Carryback, north slopes	6e	---	---	---	---
60:					
Carryback, south slopes	6e	---	---	---	---
Carryback, north slopes	6e	---	---	---	---
61:					
Carryback	7s	---	---	---	---
Pearlwise	4e	---	---	---	---
62:					
Carryback	7s	---	---	---	---
Pearlwise	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
63:					
Carryback	6e	---	---	---	---
Dickle	6e	---	---	---	---
64:					
Carvix	6c	4c	5.00	2.50	5.50
65:					
Clamp	7s	---	---	---	---
Baconcamp	6e	---	---	---	---
Hackwood	6e	---	---	---	---
66:					
Coztur	6e	---	---	---	---
67:					
Crowcamp	6w	4w	4.00	2.00	4.40
68:					
Crowcamp	6w	4w	4.00	2.00	4.40
Ausmus	6s	6s	4.00	1.00	2.20
Poujade	6s	6s	4.00	1.50	3.30

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
69:					
Davey	6e	---	---	---	---
70:					
Davey	6e	---	---	---	---
Oreanna	6s	---	---	---	---
71:					
Defenbaugh	6s	---	---	---	---
72:					
Deppy	6e	---	---	---	---
73:					
Deppy	6e	---	---	---	---
Tumtum	6e	---	---	---	---
74:					
Dickle	6e	---	---	---	---
75:					
Dixon	6s	---	---	---	---
76:					
Dixon	6s	---	---	---	---
77:					
Dixon	6e	---	---	---	---
78:					
Dixon	6s	---	---	---	---
Droval	6s	---	---	---	---
79:					
Dogmountain	6e	6e	4.00	---	---
80:					
Doyn	7s	---	---	---	---
81:					
Doyn	7s	---	---	---	---
Merlin	6e	---	---	---	---
82:					
Doyn	7s	---	---	---	---
Arcia	7s	---	---	---	---
83:					
Drewsey	6e	---	---	---	---
84:					
Drewsey	6e	---	---	---	---
85:					
Drewsey	6e	---	---	---	---
Torriorthents	7s	---	---	---	---
Gumble	6e	---	---	---	---
86:					
Droval	6s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
87:					
Duff	6e	---	---	---	---
88:					
Duff	6e	---	---	---	---
Clamp	7s	---	---	---	---
89:					
Duff	6e	---	---	---	---
Clamp	7s	---	---	---	---
90:					
Duff	6e	---	---	---	---
Hackwood	6e	---	---	---	---
91:					
Edemaps	6e	---	---	---	---
92:					
Edemaps	6e	---	---	---	---
Carryback	6e	---	---	---	---
93:					
Enko	6e	3e	6.00	---	---
94:					
Enko	6e	3e	6.00	---	---
Catlow	6e	3e	4.00	---	---
95:					
Enko	6e	---	---	---	---
Catlow	6e	---	---	---	---
96:					
Enko	6e	---	---	---	---
Catlow	6e	---	---	---	---
97:					
Erakatak	7e	---	---	---	---
98:					
Erakatak	6e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
99:					
Erakatak	6e	---	---	---	---
Merlin	6e	---	---	---	---
Westbutte	6e	---	---	---	---
100:					
Erakatak	6e	---	---	---	---
Rock outcrop	8	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
101:					
Erakatak	4e	---	---	---	---
Ninemile	6e	---	---	---	---
Hapgood	6e	---	---	---	---
102:					
Felcher	7s	---	---	---	---
103:					
Felcher	7e	---	---	---	---
Rock outcrop	8	---	---	---	---
104:					
Felcher	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
Brezniak	7s	---	---	---	---
105:					
Felcher	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
Westbutte	7s	---	---	---	---
106:					
Felcher	6e	---	---	---	---
Sagehen	7s	---	---	---	---
107:					
Felcher	7e	---	---	---	---
Sagehen	7e	---	---	---	---
108:					
Felcher	6e	---	---	---	---
Fitzwater	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
109:					
Felcher	6e	---	---	---	---
Pernty	7s	---	---	---	---
Ninemile	6e	---	---	---	---
110:					
Felcher	6e	---	---	---	---
Westbutte	7s	---	---	---	---
111:					
Final	6s	---	---	---	---
112:					
Fitzwater	6e	---	---	---	---
Hapgood, thick surface	6e	---	---	---	---
Hapgood, thin surface	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
113:					
Fitzwater	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
114:					
Flank	7s	---	---	---	---
Lava flows	8	---	---	---	---
115:					
Fourwheel	6e	---	---	---	---
116:					
Fourwheel	7s	---	---	---	---
117:					
Freznik	6e	---	---	---	---
118:					
Fury	5w	5w	---	2.00	4.40
119:					
Fury	5w	---	---	---	---
120:					
Fury	5w	5w	---	2.00	4.40
Degarmo	4w	4w	---	2.00	4.40
121:					
Fury	5w	5w	---	2.00	4.40
Housefield	5w	---	---	---	---
122:					
Fury	5w	5w	---	2.00	4.40
Housefield	5w	---	---	---	---
Skidoosprings	6s	6s	---	1.50	3.30
123:					
Fury	5w	5w	---	2.00	4.40
Opie	6s	6s	---	2.00	4.40
124:					
Fury	5w	5w	---	2.00	4.40
Skidoosprings	6s	6s	---	1.50	3.30
Opie	6s	6s	---	2.00	4.40
125:					
Fury	5w	5w	---	2.00	4.40
Widowspring	4c	4c	---	2.50	5.50
126:					
Gaib	7s	---	---	---	---
127:					
Gaib	7s	---	---	---	---
Ateron	7s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
128:					
Gaib	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
129:					
Gilispie	7s	---	---	---	---
Noname	7s	---	---	---	---
130:					
Gochea	6e	---	---	---	---
131:					
Goldrun	6e	---	---	---	---
Alvodest	6s	---	---	---	---
132:					
Gradon	6e	---	---	---	---
133:					
Guano	6e	---	---	---	---
134:					
Gumble	6e	---	---	---	---
135:					
Gumble	6e	---	---	---	---
136:					
Gumble	6e	---	---	---	---
Mahoon	6e	---	---	---	---
Cagle	6e	---	---	---	---
137:					
Hackwood	6e	---	---	---	---
138:					
Hackwood	6e	---	---	---	---
Baconcamp	6e	---	---	---	---
139:					
Hapgood	6e	---	---	---	---
140:					
Hart Camp	6e	---	---	---	---
141:					
Hart Camp	6e	---	---	---	---
142:					
Helphenstein	6s	---	---	---	---
Goldrun	6e	---	---	---	---
143:					
Homefield	5w	---	---	---	---
144:					
Housefield	5w	5w	---	2.00	4.40

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
145:					
Housefield	5w	---	---	---	---
Doubleo	5w	---	---	---	---
146:					
Icene	6s	---	---	---	---
Playas	8	---	---	---	---
147:					
Icene	6s	---	---	---	---
Playas	8	---	---	---	---
148:					
Jesse Camp	6e	---	---	---	---
149:					
Jimgreen	5w	---	---	---	---
150:					
Jimgreen	5w	---	---	---	---
Housefield	5w	---	---	---	---
151:					
Kegler	6e	4e	5.00	---	---
152:					
Kerrfield	6e	---	---	---	---
153:					
Klicker	6e	---	---	---	---
154:					
Klicker	7s	---	---	---	---
155:					
Krackle, north slopes	6e	---	---	---	---
Krackle, south slopes	6e	---	---	---	---
156:					
Krackle	6e	---	---	---	---
Baconcamp	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
157:					
Krackle	6e	---	---	---	---
Baconcamp	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
158:					
Krackle	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
159:					
Krackle	6e	---	---	---	---
Baconcamp	6e	---	---	---	---
Hackwood	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
160:					
Ladycomb	7s	---	---	---	---
161:					
Lambranch	6e	---	---	---	---
162:					
Lambring	6e	---	---	---	---
Egyptcreek	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
163:					
Lambring, thick surface	6e	---	---	---	---
Lambring, thin surface	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
164:					
Lambring	7s	---	---	---	---
Rubble land	8	---	---	---	---
165:					
Langslet	6s	---	---	---	---
166:					
Lava flows	8	---	---	---	---
167:					
Lava flows	8	---	---	---	---
Flank	7s	---	---	---	---
168:					
Lawen	6e	4e	6.00	---	---
169:					
Leathers	6s	---	---	---	---
170:					
Leathers	6s	---	---	---	---
171:					
Leemorris	6e	---	---	---	---
Buckwilder	6e	---	---	---	---
172:					
Leemorris	6e	---	---	---	---
Buckwilder	6e	---	---	---	---
173:					
Legler	6c	---	---	---	---
174:					
Locane	7s	---	---	---	---
175:					
Lolak	6s	---	---	---	---
176:					
Lolak	6s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
176:					
Ausmus	6s	---	---	---	---
177:					
Lonely	6e	---	---	---	---
Doyn	7s	---	---	---	---
178:					
Lonely	6e	---	---	---	---
Robson	7s	---	---	---	---
179:					
Longcreek	7s	---	---	---	---
Cleavage	7s	---	---	---	---
180:					
Longcreek	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
181:					
Loupence	3c	3c	---	2.50	5.50
182:					
Madeline	6e	---	---	---	---
183:					
Madeline	6e	---	---	---	---
184:					
Madeline	6e	---	---	---	---
Ninemile	6e	---	---	---	---
185:					
Madeline	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
186:					
Mahoon	6e	---	---	---	---
187:					
Mahoon	6e	---	---	---	---
Brezniak	7s	---	---	---	---
Longcreek	7s	---	---	---	---
188:					
Mahoon	6e	---	---	---	---
Cagle	6e	---	---	---	---
189:					
Mahoon	6e	---	---	---	---
Risley	6e	---	---	---	---
190:					
Mahoon	6e	---	---	---	---
Cotant	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
191:					
Mcbain	6s	---	---	---	---
Ausmus	6s	---	---	---	---
192:					
McConnel	6e	---	---	---	---
193:					
Merlin	6e	---	---	---	---
194:					
Merlin, very stony	6e	---	---	---	---
Merlin, very cobbly	6e	---	---	---	---
195:					
Merlin	6e	---	---	---	---
Ateron	7s	---	---	---	---
196:					
Merlin	6e	---	---	---	---
Ateron	7s	---	---	---	---
Rubble land	8	---	---	---	---
197:					
Merlin	6e	---	---	---	---
Ateron	7s	---	---	---	---
Ticino	4e	---	---	---	---
198:					
Merlin	6e	---	---	---	---
Erakatak	4e	---	---	---	---
Teguro	6e	---	---	---	---
199:					
Merlin	6e	---	---	---	---
Observation	6s	---	---	---	---
200:					
Merlin	6e	---	---	---	---
Observation	6s	---	---	---	---
201:					
Merlin	6e	---	---	---	---
Rubble land	8	---	---	---	---
202:					
Merlin	6e	---	---	---	---
Teguro	6e	---	---	---	---
203:					
Merlin	6e	---	---	---	---
Teguro	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
204:					
Mesman	6s	---	---	---	---
205:					
Mesman	6s	---	---	---	---
206:					
Mesman	6s	---	---	---	---
Norad	6c	---	---	---	---
207:					
Middlebox	6e	---	---	---	---
208:					
Middlebox, north slopes	6e	---	---	---	---
Middlebox, south slopes	6e	---	---	---	---
209:					
Minam	4c	---	---	---	---
210:					
Minam	4c	---	---	---	---
Welch	5w	---	---	---	---
211:					
Modoc	6e	---	---	---	---
212:					
Morfitt	6c	---	---	---	---
213:					
Morganhills	7s	6e	3.50	---	---
214:					
Morganhills, more than 12 percent slopes	7s	---	---	---	---
Morganhills, less than 12 percent slopes	7s	---	---	---	---
215:					
Mound	4e	---	---	---	---
216:					
Nevador	6e	---	---	---	---
217:					
Ninemile	6e	---	---	---	---
218:					
Ninemile	6e	---	---	---	---
219:					
Ninemile	6e	---	---	---	---
220:					
Ninemile	6e	---	---	---	---
Carvix	6c	---	---	---	---
221:					
Ninemile	6e	---	---	---	---
Doyn	7s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
222:					
Ninemile	6e	---	---	---	---
Edemaps	6e	---	---	---	---
223:					
Ninemile	6e	---	---	---	---
Madeline	6e	---	---	---	---
224:					
Ninemile	6e	---	---	---	---
Pearlwise	4e	---	---	---	---
225:					
Ninemile	6e	---	---	---	---
Reluctan	6e	---	---	---	---
226:					
Ninemile	6e	---	---	---	---
Reluctan	6e	---	---	---	---
Rubble land	8	---	---	---	---
227:					
Ninemile	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
228:					
Ninemile	6e	---	---	---	---
Rubble land	8	---	---	---	---
229:					
Ninemile	6e	---	---	---	---
Westbutte	7s	---	---	---	---
230:					
Ninemile, very cobbly	6e	---	---	---	---
Westbutte	7s	---	---	---	---
Ninemile, extremely stony	7s	---	---	---	---
231:					
Ninemile, very cobbly	6e	---	---	---	---
Ninemile, extremely stony	7s	---	---	---	---
232:					
Ninemile	6e	---	---	---	---
Felcher	6e	---	---	---	---
233:					
Noname	7s	---	---	---	---
Dickle	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
234:					
Noname	7s	---	---	---	---
Duff	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
235:					
Norad	6c	---	---	---	---
236:					
Norad	6c	---	---	---	---
Spangenburg	6s	---	---	---	---
237:					
Nuss	6e	---	---	---	---
238:					
Nuss	6e	---	---	---	---
Merlin	6e	---	---	---	---
239:					
Nuss	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
240:					
Observation	4e	---	---	---	---
241:					
Observation	4e	---	---	---	---
Rock outcrop	8	---	---	---	---
242:					
Observation	4e	---	---	---	---
Royst	4e	---	---	---	---
Merlin	6e	---	---	---	---
243:					
Observation	4e	---	---	---	---
Teguro	6e	---	---	---	---
244:					
Observation	6e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
245:					
Olac	7s	---	---	---	---
Atlow	7s	---	---	---	---
246:					
Opie	6s	6s	---	2.00	4.40
247:					
Oreneva	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
248:					
Outerkirk	6s	---	---	---	---
249:					
Outerkirk	6e	---	---	---	---
250:					
Outerkirk	6s	---	---	---	---
Defenbaugh	6s	---	---	---	---
251:					
Ozamis	6s	6s	---	2.00	4.40
252:					
Pearlwise	6e	---	---	---	---
253:					
Pernty	7s	---	---	---	---
254:					
Pernty	7s	---	---	---	---
255:					
Pernty	7s	---	---	---	---
256:					
Pernty	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
257:					
Pernty	7s	---	---	---	---
Westbutte	7s	---	---	---	---
Ninemile	6e	---	---	---	---
258:					
Pits	8	---	---	---	---
259:					
Playas	8	---	---	---	---
260:					
Playas	8	---	---	---	---
Thenarrows	6s	---	---	---	---
261:					
Poall	6e	---	---	---	---
262:					
Poall	6e	---	---	---	---
Gumble	6e	---	---	---	---
263:					
Pomerening	6e	---	---	---	---
264:					
Pomerening	6e	---	---	---	---
Flank	7s	---	---	---	---
Lava flows	8	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
265:					
Porterfield	6e	---	---	---	---
266:					
Porterfield	6e	---	---	---	---
267:					
Porterfield	6e	---	---	---	---
Tincan	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
268:					
Poujade	6s	---	---	---	---
269:					
Poujade	6s	6s	4.00	---	---
270:					
Poujade	6s	---	---	---	---
Ausmus	6s	---	---	---	---
271:					
Raz	6e	---	---	---	---
272:					
Raz	6e	---	---	---	---
Brace	6e	---	---	---	---
273:					
Raz	6e	---	---	---	---
Brace	6e	---	---	---	---
274:					
Reallis	6e	4e	6.00	---	---
275:					
Reallis	6s	4s	6.00	---	---
276:					
Reese	6s	---	---	---	---
277:					
Reluctan	6e	---	---	---	---
278:					
Reluctan	6e	---	---	---	---
279:					
Riddleranch	6e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
280:					
Riddleranch	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
281:					
Rinconflat	6e	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
282:					
Rio King	6e	3e	6.00	2.50	5.50
283:					
Rio King	6c	3c	6.00	2.50	5.50
Droval	6s	6s	1.00	0.50	1.00
284:					
Risley	6e	---	---	---	---
Gumble	6e	---	---	---	---
285:					
Risley	6e	---	---	---	---
Gumble	6e	---	---	---	---
Torriorthents	7s	---	---	---	---
286:					
Risley	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
287:					
Robson	7s	---	---	---	---
Anawalt	6e	---	---	---	---
288:					
Robson	7s	---	---	---	---
Fourwheel	6e	---	---	---	---
289:					
Robson	7s	---	---	---	---
Felcher	6e	---	---	---	---
290:					
Roca	6e	---	---	---	---
291:					
Rock outcrop	8	---	---	---	---
Rubble land	8	---	---	---	---
292:					
Rock outcrop	8	---	---	---	---
Baconcamp	6e	---	---	---	---
293:					
Royst	4e	---	---	---	---
Merlin	6e	---	---	---	---
294:					
Rubble land	8	---	---	---	---
Nuss	6e	---	---	---	---
Ateron	7s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
295:					
Sagehen	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
296:					
Sagehen	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
297:					
Sandgap	6e	---	---	---	---
298:					
Sandgap	6s	---	---	---	---
299:					
Seharney	7s	---	---	---	---
300:					
Skedaddle	7s	---	---	---	---
Atlow	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
301:					
Skedaddle	7s	---	---	---	---
Atlow	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
302:					
Skedaddle	7s	---	---	---	---
Rock outcrop	8	---	---	---	---
303:					
Skedaddle, south slopes	7s	---	---	---	---
Skedaddle, north slopes	7s	---	---	---	---
304:					
Skidoosprings	6s	---	---	---	---
305:					
Skidoosprings	6s	---	---	---	---
306:					
Skunkfarm	5w	5w	---	2.00	4.40
Cumulic Haploxerolls	6s	---	---	---	---
307:					
Skunkfarm	5w	5w	---	2.00	4.40
Doubleo	5w	---	---	---	---
308:					
Skunkfarm	5w	5w	---	2.00	4.40
Mcbain	6s	---	---	---	---
Doubleo	5w	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
309:					
Skunkfarm	5w	5w	---	2.00	4.40
Skidoosprings	6s	6s	---	1.50	3.30
310:					
Spangenburg	6s	---	---	---	---
311:					
Spangenburg	6s	3s	3.50	2.00	4.40
312:					
Spangenburg	6s	3s	3.50	---	---
313:					
Srednic	6e	---	---	---	---
Aval	6e	---	---	---	---
314:					
Stampede	6e	---	---	---	---
315:					
Swaler	6s	---	---	---	---
316:					
Swaler	6s	---	---	---	---
Swalesilver	6w	---	---	---	---
317:					
Swalesilver	6w	---	---	---	---
318:					
Swalesilver	6w	---	---	---	---
319:					
Swalesilver	6w	---	---	---	---
320:					
Teguro	6e	---	---	---	---
321:					
Teguro	6e	---	---	---	---
322:					
Teguro	6e	---	---	---	---
323:					
Teguro	6e	---	---	---	---
Anatone, moist	7s	---	---	---	---
324:					
Teguro	6e	---	---	---	---
Ateron	7s	---	---	---	---
325:					
Thenarrows	6s	---	---	---	---
Duckclub	6s	---	---	---	---
326:					
Thenarrows	6s	---	---	---	---
Duckclub	6s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
326:					
Dentdraw	6s	---	---	---	---
327:					
Thenarrows	6s	---	---	---	---
Duckclub	6s	---	---	---	---
Sandgap	6s	---	---	---	---
328:					
Ticino	4e	---	---	---	---
Merlin	6e	---	---	---	---
329:					
Ticino	4e	---	---	---	---
Observation	4e	---	---	---	---
330:					
Ticino	4e	---	---	---	---
Rock outcrop	8	---	---	---	---
331:					
Toll	6e	---	---	---	---
332:					
Toll	6e	---	---	---	---
Nevador	6e	---	---	---	---
333:					
Torriorthents	7s	---	---	---	---
Gumble	6e	---	---	---	---
334:					
Tumtum	6e	---	---	---	---
335:					
Tumtum	6e	---	---	---	---
336:					
Turpin	6s	---	---	---	---
337:					
Vanwyper	7e	---	---	---	---
Rock outcrop	8	---	---	---	---
338:					
Vergas	6s	---	---	---	---
339:					
Vil	6e	---	---	---	---
340:					
Vining	6e	---	---	---	---
341:					
Vining	6e	---	---	---	---
Tuffo	7s	---	---	---	---
342:					
Vitale	6s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
343:					
Vitale	4e	---	---	---	---
Merlin	6e	---	---	---	---
344:					
Vitale	4e	---	---	---	---
Merlin	6e	---	---	---	---
Doyn	7s	---	---	---	---
345:					
Vitale	4e	---	---	---	---
Observation	4e	---	---	---	---
346:					
Vitale	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
347:					
Voltage	6s	4s	---	2.00	4.40
348:					
Voltage	6s	4s	---	2.00	4.40
Crowcamp	6w	4w	---	2.00	4.40
349:					
Voltage	6s	---	---	---	---
Crowcamp	6w	---	---	---	---
350:					
Voltage	6s	4s	---	2.00	4.40
Widowspring	4c	4c	---	2.50	5.50
351:					
Wagontire	6e	---	---	---	---
352:					
Wagontire	6e	---	---	---	---
Vil	6e	---	---	---	---
353:					
Waspo	6e	---	---	---	---
Poall	6e	---	---	---	---
354:					
Water	8	---	---	---	---
355:					
Welch	5w	---	---	---	---
356:					
Welch	5w	---	---	---	---
357:					
Welch	5w	5w	---	2.50	5.50
Roschene	4c	4c	---	2.50	5.50
Cumulic Haploxerolls	4s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
358:					
Wenas	5w	5w	---	2.50	5.50
Loupence	3c	3c	---	2.50	5.50
Cumulic Haploxerolls	4s	---	---	---	---
359:					
Westbutte	6e	---	---	---	---
360:					
Westbutte	7s	---	---	---	---
361:					
Westbutte	7e	---	---	---	---
Bocker	7s	---	---	---	---
362:					
Westbutte	7e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
363:					
Westbutte	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
364:					
Westbutte	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
365:					
Westbutte	6e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
366:					
Westbutte	6e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
367:					
Westbutte	6e	---	---	---	---
Lambring	6e	---	---	---	---
Rock outcrop	8	---	---	---	---
368:					
Westbutte	6s	---	---	---	---
Observation	6s	---	---	---	---
369:					
Westbutte	6s	---	---	---	---
Rock outcrop	8	---	---	---	---
Pernty	7s	---	---	---	---

Table 5.--Land Capability and Yields per Acre of Crops and Pasture--Continued

Map symbol and soil name	Land capability		Alfalfa hay	Grass hay	Pasture
	N	I	I	I	I
			Tons	*Tons*	*AUM*
370:					
Widowspring	4c	4c	6.00	2.50	5.50
371:					
Windybutte	6e	4e	6.00	---	---
372:					
Wolverine	6e	---	---	---	---
373:					
Denied access	---	---	---	---	---

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities

(Composition of the forest understory is based on percent canopy cover; composition of the range sites is based on percent weight)

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
1:						
Actem----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
2:						
Actem----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
3:						
Actem----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
Robson----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
4:						
Alvodest--------	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Bulrush		5
5:						
Alvodest--------	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Bulrush		5
Playas.						
6:						
Alyan----------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
7:						
Anatone---------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
8:						
Anatone, moist--	SR DRY PINE 14-16PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Western juniper		5
Anatone---------	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
9:						
Anatone---------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Teguro----------	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
Observation-----	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
10:						
Anatone, moist--	SR DRY PINE 14-16PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Western juniper		5
Egyptcreek------	Ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass (CPS131)	Favorable	1,000	Idaho fescue	50	
		Normal	800	Antelope bitterbrush	15	
		Unfavorable	600	Bluebunch wheatgrass	10	
				Mountain big sagebrush	5	
				Ponderosa pine	5	
				Wax currant	5	
Rock outcrop.						
11:						
Anatone, moist--	SR DRY PINE 14-16PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Western juniper		5
Minam-----------	SR DRY MOUNTAIN SWALE 12-16PZ (R010XC019OR)	Favorable	2,200	Idaho fescue		70
		Normal	1,800	Bluebunch wheatgrass		15
		Unfavorable	1,600	Sedge		10
				Mountain big sagebrush		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
11:						
Rock outcrop.						
12:						
Anatone---------	SR MOUNTAIN SHALLOW SOUTH 12-16PZ (R010XC054OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	600	Sandberg bluegrass		8
		Unfavorable	400	Idaho fescue		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Teguro----------	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
Rock outcrop.						
13:						
Anatone---------	SR MOUNTAIN SHALLOW SOUTH 12-16PZ (R010XC054OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	600	Sandberg bluegrass		8
		Unfavorable	400	Idaho fescue		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Westbutte-------	SR MOUNTAIN NORTH 12-16PZ (R010XC066OR)	Favorable	2,200	Idaho fescue		75
		Normal	1,600	Bluebunch wheatgrass		8
		Unfavorable	1,000	Mountain big sagebrush		5
Rock outcrop.						
14:						
Anawalt---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
15:						
Anawalt---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Lonely----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
16:						
Anawalt---------	SHALLOW GRAVELLY LOAM 10-12PZ (R023XY215OR)	Favorable	700	Thurber needlegrass		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		10
				Sandberg bluegrass		5
				Bottlebrush squirreltail		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
16:						
Oreneva---	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
17:						
Anawalt---	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Raz---	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
18:						
Ateron---	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
19:						
Ateron---	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
Rubble land.						
20:						
Ateron---	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
Observation---	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
21:						
Atlow---	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
22:						
Atlow---	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
23:						
Atlow	SHALLOW LOAMY SLOPES 6-10PZ (R024XY030OR)	Favorable	700	Indian ricegrass		30
		Normal	500	Wyoming big sagebrush		25
		Unfavorable	300	Thurber needlegrass		10
				Spiny hopsage		10
Rock outcrop.						
24:						
Atlow	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Skedaddle	DESERT LOAM 6-10PZ (R024XY015OR)	Favorable	700	Shadscale		35
		Normal	500	Bud sagebrush		25
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
25:						
Ausmus	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
26:						
Ausmus	SODIC LAKE TERRACE (R024XY114OR)	Favorable	1,000	Inland saltgrass		60
		Normal	800	Lemmon's alkaligrass		20
		Unfavorable	600	Black greasewood		15
27:						
Baconcamp	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
28:						
Baconcamp	SHALLOW LOAM 16-25PZ (R023XY501OR)	Favorable	1,600	Idaho fescue		50
		Normal	1,200	Sheep fescue		15
		Unfavorable	800	Mountain big sagebrush		10
				Letterman needlegrass		5
				Basin wildrye		5
				Sedge		5
				Western needlegrass		5
Clamp	CLAYPAN 16-25PZ (R023XY507OR)	Favorable	1,100	Idaho fescue		45
		Normal	900	Low sagebrush		15
		Unfavorable	700	Onespike oatgrass		10
				Sheep fescue		10
				Letterman needlegrass		5
				Prairie junegrass		5
				Western needlegrass		5
29:						
Baconcamp	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
29:						
Clamp----------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
30:						
Baconcamp-------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Clamp----------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Rock outcrop.						
31:						
Baconcamp-------	SHALLOW LOAM 16-25PZ (R023XY501OR)	Favorable	1,600	Idaho fescue		50
		Normal	1,200	Sheep fescue		15
		Unfavorable	800	Mountain big sagebrush		10
				Letterman needlegrass		5
				Basin wildrye		5
				Sedge		5
				Western needlegrass		5
Rock outcrop.						
32:						
Baconcamp-------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
Rock outcrop.						
33:						
Baconcamp-------	SUBALPINE SLOPES 16-35PZ (R023XY509OR)	Favorable	1,400	Idaho fescue		55
		Normal	1,000	Mountain big sagebrush		15
		Unfavorable	800	Whortleleaf snowberry		10
				Letterman needlegrass		5
				Basin wildrye		5
				Bluebunch wheatgrass		5
				Sedge		5
Rock outcrop.						
Hackwood--------	ASPEN 16-35PZ (R023XY418OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Needlegrass		10
				Whortleleaf snowberry		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
34:						
Baconcamp-------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Hapgood---------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
Rock outcrop.						
35:						
Baconcamp-------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
Krackle---------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Rock outcrop.						
36:						
Berdugo---------	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		40
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber needlegrass		10
				Indian ricegrass		8
37:						
Berdugo---------	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		40
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber needlegrass		10
				Indian ricegrass		8
Catlow----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
38:						
Bigfrog---------	NORTH SLOPES 6-10PZ (R024XY033OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber needlegrass		30
		Unfavorable	500	Wyoming big sagebrush		15
				Indian ricegrass		5
				Ephedra		5
				Spiny hopsage		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
38:						
Brock----------	SOUTH SLOPES 6-10PZ (R024XY032OR)	Favorable	500	Indian ricegrass		25
		Normal	300	Bluebunch wheatgrass		15
		Unfavorable	200	Desert needlegrass		15
				Wyoming big sagebrush		10
				Purple sage		8
				Ephedra		5
				Spiny hopsage		5
39:						
Bocker----------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Westbutte-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
40:						
Boravall--------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
Playas.						
41:						
Borobey---------	PUMICE 10-12PZ (R023XY210OR)	Favorable	1,100	Idaho fescue		50
		Normal	900	Antelope bitterbrush		15
		Unfavorable	700	Mountain big sagebrush		10
				Ross' sedge		5
				Thurber needlegrass		5
				Western needlegrass		5
42:						
Boulder Lake----	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
43:						
Boulder Lake----	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
44:						
Boulder Lake----	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
44:						
Spangenburg-----	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		40
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber needlegrass		10
				Indian ricegrass		8
45:						
Brabble---------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Calderwood------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
46:						
Brace-----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Coztur----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Rock outcrop.						
47:						
Brace-----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Vergas----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
48:						
Bruncan, thick surface--------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
48:						
Bruncan, thin surface--------	THIN SURFACE 8-14PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber needlegrass		5
49:						
Brunzell--------	SR DRY MOUNTAIN SWALE 12-16PZ (R010XC019OR)	Favorable	2,200	Idaho fescue		70
		Normal	1,800	Bluebunch wheatgrass		15
		Unfavorable	1,600	Sedge		10
				Mountain big sagebrush		5
50:						
Bucklake--------	SR MOUNTAIN NORTH 9-12PZ (R010XC065OR)	Favorable	1,600	Idaho fescue		80
		Normal	1,100	Sandberg bluegrass		5
		Unfavorable	800	Wyoming big sagebrush		5
				Bluebunch wheatgrass		5
51:						
Bucklake--------	SR MOUNTAIN NORTH 9-12PZ (R010XC065OR)	Favorable	1,600	Idaho fescue		80
		Normal	1,100	Sandberg bluegrass		5
		Unfavorable	800	Wyoming big sagebrush		5
				Bluebunch wheatgrass		5
Mahoon----------	SR CLAYEY SOUTH 9-12PZ (R010XC043OR)	Favorable	1,000	Bluebunch wheatgrass		70
		Normal	800	Thurber needlegrass		15
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
Rubble land.						
52:						
Calderwood------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
53:						
Calderwood------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
McConnel--------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
54:						
Carryback-------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
55:						
Carryback-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
56:						
Carryback-------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
57:						
Carryback-------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
58:						
Carryback, thin surface--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Carryback, thick surface--------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
59:						
Carryback, thin surface--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Carryback, south slopes---------	DROUGHTY SOUTH SLOPES 11-13PZ (R023XY301OR)	Favorable	1,200	Bluebunch wheatgrass		40
		Normal	900	Thurber needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Idaho fescue		8
				Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Balsamroot		5
Carryback, north slopes---------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
60:						
Carryback, south slopes---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Carryback, north slopes---------	NORTH SLOPES 10-12PZ (R023XY308OR)	Favorable	1,500	Idaho fescue		50
		Normal	1,200	Wyoming big sagebrush		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Skyline bluegrass		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
61:						
Carryback-------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Pearlwise-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
62:						
Carryback-------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Pearlwise-------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
Rock outcrop.						
63:						
Carryback-------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Dickle----------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
64:						
Carvix----------	SWALE 10-14PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Idaho fescue		10
				Bluebunch wheatgrass		10
				Sandberg bluegrass		5
				Thurber needlegrass		5
				Western needlegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
65:						
Clamp----------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Baconcamp-------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
Hackwood--------	ASPEN 16-35PZ (R023XY418OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Needlegrass		10
				Whortleleaf snowberry		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5
66:						
Coztur----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
67:						
Crowcamp--------	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
68:						
Crowcamp--------	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
Ausmus----------	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
Poujade---------	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Basin big sagebrush		10
				Black greasewood		8
				Inland saltgrass		5
				Needleandthread		5
69:						
Davey----------	SANDY 6-10PZ (R024XY012OR)	Favorable	1,000	Needleandthread		30
		Normal	800	Fourwing saltbush		25
		Unfavorable	500	Indian ricegrass		20
				Basin big sagebrush		10
				Basin wildrye		5
				Beardless wildrye		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
70:						
Davey----------	SANDY 6-10PZ (R024XY012OR)	Favorable	1,000	Needleandthread		30
		Normal	800	Fourwing saltbush		25
		Unfavorable	500	Indian ricegrass		20
				Basin big sagebrush		10
				Basin wildrye		5
				Beardless wildrye		5
Oreanna---------	DESERT LOAM 6-10PZ (R024XY015OR)	Favorable	700	Shadscale		35
		Normal	500	Bud sagebrush		25
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
71:						
Defenbaugh------	LOW SODIC TERRACE 6-10PZ (R024XY013OR)	Favorable	400	Black greasewood		25
		Normal	300	Bud sagebrush		15
		Unfavorable	200	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		7
				Basin wildrye		5
				Beardless wildrye		5
72:						
Deppy----------	DESERT LOAM 6-10PZ (R024XY015OR)	Favorable	700	Shadscale		35
		Normal	500	Bud sagebrush		25
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
73:						
Deppy----------	DESERT LOAM 6-10PZ (R024XY015OR)	Favorable	700	Shadscale		35
		Normal	500	Bud sagebrush		25
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Tumtum----------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
74:						
Dickle----------	CLAYPAN 16-25PZ (R023XY507OR)	Favorable	1,100	Idaho fescue		45
		Normal	900	Low sagebrush		15
		Unfavorable	700	Onespike oatgrass		10
				Sheep fescue		10
				Letterman needlegrass		5
				Prairie junegrass		5
				Western needlegrass		5
75:						
Dixon----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
76:						
Dixon----------	DRY SODIC FLOODPLAIN (R024XY112OR)	Favorable	500	Black greasewood		45
		Normal	300	Basin wildrye		15
		Unfavorable	200	Inland saltgrass		15
				Basin big sagebrush		5
				Rabbitbrush		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
77:						
Dixon----------	SODIC FAN 6-10PZ (R024XY113OR)	Favorable	800	Indian ricegrass		40
		Normal	600	Basin wildrye		20
		Unfavorable	400	Basin big sagebrush		10
				Black greasewood		7
				Wyoming big sagebrush		5
				Bottlebrush squirreltail		5
				Spiny hopsage		5
78:						
Dixon----------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5
Droval----------	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
79:						
Dogmountain-----	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
80:						
Doyn----------	SR MOUNTAIN VERY SHALLOW 12-16PZ (R010XC039OR)	Favorable	600	Onespike oatgrass		30
		Normal	400	Stiff sagebrush		25
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bluebunch wheatgrass		10
81:						
Doyn----------	SR MOUNTAIN VERY SHALLOW 12-16PZ (R010XC039OR)	Favorable	600	Onespike oatgrass		30
		Normal	400	Stiff sagebrush		25
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bluebunch wheatgrass		10
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
82:						
Doyn----------	SR MOUNTAIN VERY SHALLOW 12-16PZ (R010XC039OR)	Favorable	600	Onespike oatgrass		30
		Normal	400	Stiff sagebrush		25
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bluebunch wheatgrass		10
Arcia----------	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
83:						
Drewsey----------	SR LOAMY 9-12PZ (R010XC020OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,000	Thurber needlegrass		25
		Unfavorable	800	Wyoming big sagebrush		10
				Needleandthread		10
				Basin wildrye		5
				Squaw apple		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
84:						
Drewsey---	SR LOAMY 9-12PZ (R010XC020OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,000	Thurber needlegrass		25
		Unfavorable	800	Wyoming big sagebrush		10
				Needleandthread		10
				Basin wildrye		5
				Squaw apple		5
85:						
Drewsey---	SR LOAMY 9-12PZ (R010XC020OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,000	Thurber needlegrass		25
		Unfavorable	800	Wyoming big sagebrush		10
				Needleandthread		10
				Basin wildrye		5
				Squaw apple		5
Torriorthents---	SR SHALLOW ESCARPMENT 9-12PZ (R010XC057OR)	Favorable	400	Bluebunch wheatgrass		40
		Normal	300	Thurber needlegrass		30
		Unfavorable	100	Wyoming big sagebrush		10
				Antelope bitterbrush		8
				Squaw apple		8
Gumble---	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
86:						
Droval---	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
87:						
Duff---	SWALE 12-16PZ (R023XY406OR)	Favorable	3,000	Basin wildrye		40
		Normal	2,500	Skyline bluegrass		15
		Unfavorable	2,000	Idaho fescue		10
				Mountain big sagebrush		10
				Green rabbitbrush		8
				Whortleleaf snowberry		8
				Antelope bitterbrush		5
88:						
Duff---	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
Clamp---	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
89:						
Duff---	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Clamp---	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
90:						
Duff----------	SWALE 12-16PZ (R023XY406OR)	Favorable	3,000	Basin wildrye		40
		Normal	2,500	Skyline bluegrass		15
		Unfavorable	2,000	Idaho fescue		10
				Mountain big sagebrush		10
				Green rabbitbrush		8
				Whortleleaf snowberry		8
				Antelope bitterbrush		5
Hackwood--------	ASPEN 16-35PZ (R023XY418OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Needlegrass		10
				Whortleleaf snowberry		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5
91:						
Edemaps---------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
92:						
Edemaps---------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
Carryback-------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
93:						
Enko----------	SANDY LOAM 8-10PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		10
				Thurber needlegrass		5
				Basin wildrye		5
94:						
Enko----------	SANDY LOAM 8-10PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		10
				Thurber needlegrass		5
				Basin wildrye		5
Catlow----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
95:						
Enko----------	SANDY LOAM 8-10PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		10
				Thurber needlegrass		5
				Basin wildrye		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
95:						
Catlow----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
96:						
Enko----------	SANDY LOAM 8-10PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		10
				Thurber needlegrass		5
				Basin wildrye		5
Catlow----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
97:						
Erakatak--------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
98:						
Erakatak--------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Lambring--------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Rock outcrop.						
99:						
Erakatak--------	SR MOUNTAIN NORTH 12-16PZ (R010XC066OR)	Favorable	2,200	Idaho fescue		75
		Normal	1,600	Bluebunch wheatgrass		8
		Unfavorable	1,000	Mountain big sagebrush		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Westbutte-------	SR MOUNTAIN SOUTH 12-16PZ (R010XC047OR)	Favorable	1,400	Bluebunch wheatgrass		50
		Normal	1,000	Idaho fescue		20
		Unfavorable	700	Thurber needlegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
100:						
Erakatak--------	JUNIPER SOUTH SLOPES 12-16PZ (R023XY320OR)	Favorable	700	Bluebunch wheatgrass		25
		Normal	500	Idaho fescue		20
		Unfavorable	300	Thurber needlegrass		15
				Western juniper		15
				Mountain big sagebrush		10
				Skyline bluegrass		8
Rock outcrop.						
101:						
Erakatak--------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Hapgood---------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
102:						
Felcher---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
103:						
Felcher---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Rock outcrop.						
104:						
Felcher---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
104:						
Brezniak--------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
105:						
Felcher---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Rock outcrop.						
Westbutte-------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
106:						
Felcher---------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Sagehen---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
107:						
Felcher---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Sagehen---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
108:						
Felcher---------	SOUTH SLOPES 8-12PZ	Favorable	1,000	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Fitzwater-------	NORTH SLOPES 10-12PZ	Favorable	1,500	Idaho fescue		50
	(R023XY308OR)	Normal	1,200	Wyoming big sagebrush		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Skyline bluegrass		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
Rock outcrop.						
109:						
Felcher---------	SOUTH SLOPES 8-12PZ	Favorable	1,000	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Pernty----------	SHALLOW NORTH 12-16PZ	Favorable	1,200	Idaho fescue		50
	(R023XY312OR)	Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Ninemile--------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
110:						
Felcher---------	SOUTH SLOPES 8-12PZ	Favorable	1,000	Bluebunch wheatgrass		50
	(R023XY300OR)	Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Westbutte-------	NORTH SLOPES 12-16PZ	Favorable	1,800	Idaho fescue		45
	(R023XY310OR)	Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
111:						
Final-----------	SODIC BOTTOM (R010XY007OR)	Favorable	5,000	Basin wildrye		80
		Normal	4,000	Inland saltgrass		10
		Unfavorable	3,000	Black greasewood		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
112:						
Fitzwater-------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Hapgood, thick surface--------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Hapgood, thin surface--------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
113:						
Fitzwater-------	NORTH SLOPES 10-12PZ (R023XY308OR)	Favorable	1,500	Idaho fescue		50
		Normal	1,200	Wyoming big sagebrush		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Skyline bluegrass		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
Rock outcrop.						
114:						
Flank-----------	SHALLOW LAVA 10-12PZ (R023XY222OR)	Favorable	400	Thurber needlegrass		25
		Normal	300	Basin big sagebrush		25
		Unfavorable	200	Bluebunch wheatgrass		20
				Sandberg bluegrass		10
Lava flows.						
115:						
Fourwheel-------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
116:						
Fourwheel-------	NORTH SLOPES 10-12PZ (R023XY308OR)	Favorable	1,500	Idaho fescue		50
		Normal	1,200	Wyoming big sagebrush		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Skyline bluegrass		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
117:						
Freznik---------	THIN SURFACE CLAYPAN 10-16PZ (R023XY218OR)	Favorable	300	Sandberg bluegrass		45
		Normal	200	Low sagebrush		20
		Unfavorable	100			
118:						
Fury----------	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
119:						
Fury	LAKEBED (R023XY100OR)	Favorable	2,000	Spikerush		40
		Normal	1,400	Dock		30
		Unfavorable	1,000	Baltic rush		15
				Bottlebrush squirreltail		5
				Mat muhly		5
				Povertyweed		5
120:						
Fury	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
Degarmo	LOAMY BOTTOM (R023XY104OR)	Favorable	6,000	Basin wildrye		70
		Normal	4,500	Basin big sagebrush		10
		Unfavorable	2,000	Beardless wildrye		5
121:						
Fury	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
Housefield	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
122:						
Fury	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
Housefield	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
Skidoosprings	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
123:						
Fury	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
Opie	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
124:						
Fury	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
Skidoosprings	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
Opie	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
125:						
Fury	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
125:						
Widowspring-----	LOAMY BOTTOM (R023XY104OR)	Favorable	6,000	Basin wildrye		70
		Normal	4,500	Basin big sagebrush		10
		Unfavorable	2,000	Beardless wildrye		5
126:						
Gaib----------	Ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass (CPS131)	Favorable	1,000	Idaho fescue	50	
		Normal	800	Antelope bitterbrush	15	
		Unfavorable	600	Bluebunch wheatgrass	10	
				Mountain big sagebrush	5	
				Ponderosa pine	5	
				Wax currant	5	
127:						
Gaib----------	Ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass (CPS131)	Favorable	1,000	Idaho fescue	50	
		Normal	800	Antelope bitterbrush	15	
		Unfavorable	600	Bluebunch wheatgrass	10	
				Mountain big sagebrush	5	
				Ponderosa pine	5	
				Wax currant	5	
Ateron----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
128:						
Gaib----------	Ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass (CPS131)	Favorable	1,000	Idaho fescue	50	
		Normal	800	Antelope bitterbrush	15	
		Unfavorable	600	Bluebunch wheatgrass	10	
				Mountain big sagebrush	5	
				Ponderosa pine	5	
				Wax currant	5	
Rock outcrop.						
129:						
Gilispie--------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
Noname----------	ROCKY RIDGES 12-16PZ (R023XY408OR)	Favorable	900	Idaho fescue		40
		Normal	700	Curl-leaf mountain mahogany		20
		Unfavorable	500	Skyline bluegrass		15
				Western needlegrass		10
				Mountain big sagebrush		5
				Whortleleaf snowberry		5
130:						
Gochea----------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
131:						
Goldrun----------	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Black greasewood		10
				Needleandthread		10
				Beardless wildrye		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
131:						
Alvodest---------	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Bulrush		5
132:						
Gradon----------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
133:						
Guano----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
134:						
Gumble----------	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
135:						
Gumble----------	SR SHALLOW SOUTH 9-12PZ (R010XC050OR)	Favorable	800	Bluebunch wheatgrass		70
		Normal	500	Thurber needlegrass		20
		Unfavorable	300	Sandberg bluegrass		5
				Wyoming big sagebrush		5
136:						
Gumble----------	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
Mahoon----------	SR SHALLOW SOUTH 9-12PZ (R010XC050OR)	Favorable	800	Bluebunch wheatgrass		70
		Normal	500	Thurber needlegrass		20
		Unfavorable	300	Sandberg bluegrass		5
				Wyoming big sagebrush		5
Cagle----------	SR MOUNTAIN NORTH 9-12PZ (R010XC065OR)	Favorable	1,600	Idaho fescue		80
		Normal	1,100	Sandberg bluegrass		5
		Unfavorable	800	Wyoming big sagebrush		5
				Bluebunch wheatgrass		5
137:						
Hackwood--------	ASPEN 16-35PZ (R023XY418OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Needlegrass		10
				Whortleleaf snowberry		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5
138:						
Hackwood--------	ASPEN 16-35PZ (R023XY418OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Needlegrass		10
				Whortleleaf snowberry		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
138:						
Baconcamp-------	SUBALPINE SLOPES 16-35PZ (R023XY509OR)	Favorable	1,400	Idaho fescue		55
		Normal	1,000	Mountain big sagebrush		15
		Unfavorable	800	Whortleleaf snowberry		10
				Letterman needlegrass		5
				Basin wildrye		5
				Bluebunch wheatgrass		5
				Sedge		5
139:						
Hapgood---------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
140:						
Hart Camp-------	SR MOUNTAIN SHALLOW 9-12PZ (R010XC036OR)	Favorable	1,100	Idaho fescue		60
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	300	Bluebunch wheatgrass		8
				Sandberg bluegrass		5
				Thurber needlegrass		5
				Squaw apple		1
141:						
Hart Camp-------	SR MOUNTAIN SHALLOW 9-12PZ (R010XC036OR)	Favorable	1,100	Idaho fescue		60
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	300	Bluebunch wheatgrass		8
				Sandberg bluegrass		5
				Thurber needlegrass		5
				Squaw apple		1
142:						
Helphenstein----	SODIC FLAT (R024XY001OR)	Favorable	300	Black greasewood		40
		Normal	200	Inland saltgrass		20
		Unfavorable	100	Basin wildrye		10
				Alkali sacaton		5
				Bulrush		5
Goldrun---------	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Black greasewood		10
				Needleandthread		10
				Beardless wildrye		5
143:						
Homefield-------	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
144:						
Housefield------	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
145:						
Housefield------	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
Doubleo---------	SEMI-WET MARSH (R023XY116OR)	Favorable	7,000	Cattail		75
		Normal	5,000	Hardstem bulrush		15
		Unfavorable	4,000	Broadfruit burreed		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
146:						
Icene----------	LOW SODIC TERRACE 6-10PZ (R024XY013OR)	Favorable	400	Black greasewood		25
		Normal	300	Bud sagebrush		15
		Unfavorable	200	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		7
				Basin wildrye		5
				Beardless wildrye		5
Playas.						
147:						
Icene----------	SODIC TERRACE 6-10PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		20
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Spiny hopsage		15
				Black greasewood		10
				Basin wildrye		7
				Bottlebrush squirreltail		7
				Shadscale		5
Playas.						
148:						
Jesse Camp------	SWALE 10-14PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Idaho fescue		10
				Bluebunch wheatgrass		10
				Sandberg bluegrass		5
				Thurber needlegrass		5
				Western needlegrass		5
149:						
Jimgreen--------	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
150:						
Jimgreen--------	WET MARSH (R023XY115OR)	Favorable	6,000	Hardstem bulrush		50
		Normal	4,000	Broadfruit burreed		45
		Unfavorable	3,000	Cattail		5
Housefield------	BASIN WET MEADOW (R023XY117OR)	Favorable	3,000	Nebraska sedge		50
		Normal	2,000	Baltic rush		30
		Unfavorable	1,500	Spikerush		15
151:						
Kegler----------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
152:						
Kerrfield-------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
153:						
Klicker---------	Douglas fir/elk sedge (CDG111)	Favorable	500	Elk sedge	40	
		Normal	400	Douglas fir	5	
		Unfavorable	300	Pinegrass	5	
				Ponderosa pine	5	
				Western fescue	5	
				White fir	5	

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
154:						
Klicker---------	Ponderosa pine/elk sedge (CPG222)	Favorable	1,000	Elk sedge	70	
		Normal	800	Idaho fescue	10	
		Unfavorable	600	Common snowberry	10	
				Bluebunch wheatgrass	5	
				Ponderosa pine	5	
155:						
Krackle, north slopes---------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Krackle, south slopes---------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
156:						
Krackle---------	OPEN SLOPES 25-35PZ (R023XY503OR)	Favorable	700	Sedge		25
		Normal	500	Letterman needlegrass		20
		Unfavorable	300	Sheep fescue		15
				Idaho fescue		10
				Prairie junegrass		5
				Rough fescue		5
				Western needlegrass		5
Baconcamp-------	LOAMY 25-35PZ (R023XY502OR)	Favorable	800	Sheep fescue		35
		Normal	600	Idaho fescue		15
		Unfavorable	400	Mountain big sagebrush		15
				Sedge		15
				Rough fescue		10
				Skyline bluegrass		10
Rock outcrop.						
157:						
Krackle---------	SUBALPINE THIN SURFACE 35-40PZ (R023XY505OR)	Favorable	400	Sheep fescue		45
		Normal	300	Skyline bluegrass		20
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bottlebrush squirreltail		5
Baconcamp-------	SUBALPINE LOAMY 35-40PZ (R023XY504OR)	Favorable	800	Rough fescue		60
		Normal	600	Idaho fescue		10
		Unfavorable	400	Sheep fescue		10
				Skyline bluegrass		5
				Tufted hairgrass		5
Rock outcrop.						
158:						
Krackle---------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
159:						
Krackle---------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Baconcamp-------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
Hackwood--------	ASPEN 16-35PZ (R023XY418OR)	Favorable	2,500	Quaking aspen		40
		Normal	2,000	Sedge		15
		Unfavorable	1,500	Needlegrass		10
				Whortleleaf snowberry		10
				Melic		5
				Mountain big sagebrush		5
				Mountain brome		5
160:						
Ladycomb--------	SHRUBBY LOAM 8-10PZ (R024XY020OR)	Favorable	800	Thurber needlegrass		40
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	400	Ephedra		15
				Bluebunch wheatgrass		10
161:						
Lambranch-------	JD LOAMY FAN 9-12PZ (R010XB020OR)	Favorable	2,000	Bluebunch wheatgrass		50
		Normal	1,500	Thurber needlegrass		20
		Unfavorable	1,000	Basin wildrye		20
				Basin big sagebrush		5
				Needleandthread		5
162:						
Lambring--------	SR MAHOGANY ROCKLAND 12+PZ (R010XC059OR)	Favorable	1,300	Curl-leaf mountain mahogany		40
		Normal	900	Bluebunch wheatgrass		30
		Unfavorable	600	Idaho fescue		15
				Antelope bitterbrush		10
				Thurber needlegrass		5
				Western juniper		5
Egyptcreek------	Ponderosa pine/mountain big sagebrush/Idaho fescue-bluebunch wheatgrass (CPS131)	Favorable	1,000	Idaho fescue	50	
		Normal	800	Antelope bitterbrush	15	
		Unfavorable	600	Bluebunch wheatgrass	10	
				Mountain big sagebrush	5	
				Ponderosa pine	5	
				Wax currant	5	
Rock outcrop.						
163:						
Lambring, thick surface--------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
163:						
Lambring, thin surface--------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
Rock outcrop.						
164:						
Lambring--------	SR MAHOGANY ROCKLAND 12+PZ (R010XC059OR)	Favorable	1,300	Curl-leaf mountain mahogany		40
		Normal	900	Bluebunch wheatgrass		30
		Unfavorable	600	Idaho fescue		15
				Antelope bitterbrush		10
				Thurber needlegrass		5
				Western juniper		5
Rubble land.						
165:						
Langslet--------	CLAY BASIN 6-8PZ (R024XY010OR)	Favorable	600	Shadscale		70
		Normal	400	Bottlebrush squirreltail		10
		Unfavorable	300	Bud sagebrush		10
				Spiny hopsage		8
166:						
Lava flows.						
167:						
Lava flows.						
Flank----------	SHALLOW LAVA 10-12PZ (R023XY222OR)	Favorable	400	Thurber needlegrass		25
		Normal	300	Basin big sagebrush		25
		Unfavorable	200	Bluebunch wheatgrass		20
				Sandberg bluegrass		10
168:						
Lawen----------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
169:						
Leathers--------	DRY SODIC FLOODPLAIN (R024XY112OR)	Favorable	500	Black greasewood		45
		Normal	300	Basin wildrye		15
		Unfavorable	200	Inland saltgrass		15
				Basin big sagebrush		5
				Rabbitbrush		5
170:						
Leathers--------	LOW SODIC TERRACE 6-10PZ (R024XY013OR)	Favorable	400	Black greasewood		25
		Normal	300	Bud sagebrush		15
		Unfavorable	200	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		7
				Basin wildrye		5
				Beardless wildrye		5
171:						
Leemorris--------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
171:						
Buckwilder------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
172:						
Leemorris-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
Buckwilder------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
173:						
Legler----------	SR SWALE 9-12PZ (R010XC013OR)	Favorable	3,500	Basin wildrye		40
		Normal	2,500	Bluebunch wheatgrass		40
		Unfavorable	2,000	Needleandthread		15
				Basin big sagebrush		5
174:						
Locane----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
175:						
Lolak-----------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
176:						
Lolak-----------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
Ausmus----------	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
177:						
Lonely----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Doyn------------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
178:						
Lonely----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Robson----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
179:						
Longcreek-------	DROUGHTY SOUTH SLOPES 11-13PZ (R023XY301OR)	Favorable	1,200	Bluebunch wheatgrass		40
		Normal	900	Thurber needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Idaho fescue		8
				Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Balsamroot		5
Cleavage--------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
180:						
Longcreek-------	DROUGHTY SOUTH SLOPES 11-13PZ (R023XY301OR)	Favorable	1,200	Bluebunch wheatgrass		40
		Normal	900	Thurber needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Idaho fescue		8
				Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Balsamroot		5
Rock outcrop.						
181:						
Loupence--------	LOAMY BOTTOM (R010XY005OR)	Favorable	7,000	Basin wildrye		85
		Normal	5,000	Bluebunch wheatgrass		5
		Unfavorable	4,000	Bluegrass		5
				Willow		5
182:						
Madeline--------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
183:						
Madeline--------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
184:						
Madeline	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Ninemile	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
185:						
Madeline	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
Rock outcrop.						
186:						
Mahoon	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
187:						
Mahoon	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
Brezniak	SR VERY SHALLOW 9-12PZ (R010XC038OR)	Favorable	400	Sandberg bluegrass		50
		Normal	300	Stiff sagebrush		25
		Unfavorable	100	Idaho fescue		10
				Bluebunch wheatgrass		5
				Lomatium		5
Longcreek	JD CLAYPAN 9-12PZ (R010XB029OR)	Favorable	500	Bluebunch wheatgrass		40
		Normal	400	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Prairie junegrass		5
188:						
Mahoon	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
188:						
Cagle----------	SR MOUNTAIN NORTH 9-12PZ (R010XC065OR)	Favorable	1,600	Idaho fescue		80
		Normal	1,100	Sandberg bluegrass		5
		Unfavorable	800	Wyoming big sagebrush		5
				Bluebunch wheatgrass		5
189:						
Mahoon----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
Risley----------	JD CLAYPAN 9-12PZ (R010XB029OR)	Favorable	500	Bluebunch wheatgrass		40
		Normal	400	Low sagebrush		15
		Unfavorable	300	Sandberg bluegrass		10
				Prairie junegrass		5
190:						
Mahoon----------	SR CLAYEY SOUTH 9-12PZ (R010XC043OR)	Favorable	1,000	Bluebunch wheatgrass		70
		Normal	800	Thurber needlegrass		15
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
Cotant----------	SR MOUNTAIN NORTH 9-12PZ (R010XC065OR)	Favorable	1,600	Idaho fescue		80
		Normal	1,100	Sandberg bluegrass		5
		Unfavorable	800	Wyoming big sagebrush		5
				Bluebunch wheatgrass		5
191:						
Mcbain----------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5
Ausmus----------	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
192:						
McConnel--------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
193:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
194:						
Merlin, very stony----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
194:						
Merlin, very cobbly---	JD SHRUBBY MOUNTAIN CLAYPAN 12-16PZ (R010XB082OR)	Favorable	1,000	Idaho fescue		35
		Normal	800	Bluebunch wheatgrass		20
		Unfavorable	600	Antelope bitterbrush		15
				Low sagebrush		10
				Sandberg bluegrass		5
				Onespike oatgrass		5
195:						
Merlin---	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Ateron---	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
196:						
Merlin---	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Ateron---	SR MOUNTAIN VERY SHALLOW 12-16PZ (R010XC039OR)	Favorable	600	Onespike oatgrass		30
		Normal	400	Stiff sagebrush		25
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bluebunch wheatgrass		10
Rubble land.						
197:						
Merlin---	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Ateron---	SR MOUNTAIN VERY SHALLOW 12-16PZ (R010XC039OR)	Favorable	600	Onespike oatgrass		30
		Normal	400	Stiff sagebrush		25
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bluebunch wheatgrass		10
Ticino---	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
198:						
Merlin---	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
198:						
Erakatak--------	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
Teguro----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
199:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Observation-----	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
200:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Observation-----	SR MOUNTAIN NORTH 12-16PZ (R010XC066OR)	Favorable	2,200	Idaho fescue		75
		Normal	1,600	Bluebunch wheatgrass		8
		Unfavorable	1,000	Mountain big sagebrush		5
201:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Rubble land.						
202:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Teguro----------	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
203:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
203:						
Teguro----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
204:						
Mesman----------	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Black greasewood		10
				Needleandthread		10
				Beardless wildrye		5
205:						
Mesman----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
206:						
Mesman----------	SODIC TERRACE 6-10PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		20
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Spiny hopsage		15
				Black greasewood		10
				Basin wildrye		7
				Bottlebrush squirreltail		7
				Shadscale		5
Norad----------	SILTY 6-10PZ (R024XY011OR)	Favorable	500	Winterfat		60
		Normal	350	Indian ricegrass		15
		Unfavorable	200	Sickle saltbush		10
				Bottlebrush squirreltail		8
				Bud sagebrush		5
207:						
Middlebox-------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
208:						
Middlebox, north slopes---------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Middlebox, south slopes---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
209:						
Minam----------	SR DRY MOUNTAIN SWALE 12-16PZ (R010XC019OR)	Favorable	2,200	Idaho fescue		70
		Normal	1,800	Bluebunch wheatgrass		15
		Unfavorable	1,600	Sedge		10
				Mountain big sagebrush		5
210:						
Minam----------	SR DRY MOUNTAIN SWALE 12-16PZ (R010XC019OR)	Favorable	2,200	Idaho fescue		70
		Normal	1,800	Bluebunch wheatgrass		15
		Unfavorable	1,600	Sedge		10
				Mountain big sagebrush		5
Welch----------	MOUNTAIN MEADOW (R010XY002OR)	Favorable	4,000	Tufted hairgrass		60
		Normal	3,000	Bluegrass		5
		Unfavorable	2,000	Rush		5
				Willow		5
211:						
Modoc----------	SR MOUNTAIN LOAMY 9-12PZ (R010XC030OR)	Favorable	1,300	Idaho fescue		50
		Normal	900	Thurber needlegrass		15
		Unfavorable	600	Wyoming big sagebrush		10
				Needleandthread		8
				Sandberg bluegrass		5
				Bluebunch wheatgrass		5
				Western needlegrass		5
212:						
Morfitt---------	DRY PONDED CLAY 6-10PZ (R024XY007OR)	Favorable	1,000	Beardless wildrye		60
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Basin wildrye		10
				Bottlebrush squirreltail		10
				Bluegrass		5
213:						
Morganhills-----	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
214:						
Morganhills, more than 12 percent slopes	SANDY SLOPES 10-12PZ (R023XY303OR)	Favorable	1,200	Needleandthread		30
		Normal	1,000	Indian ricegrass		20
		Unfavorable	800	Antelope bitterbrush		10
				Basin big sagebrush		10
				Basin wildrye		10
Morganhills, less than 12 percent slopes	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
215:						
Mound----------	Ponderosa pine/elk sedge (CPG222)	Favorable	1,000	Elk sedge	70	
		Normal	800	Idaho fescue	10	
		Unfavorable	600	Common snowberry	10	
				Bluebunch wheatgrass	5	
				Ponderosa pine	5	

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
216:						
Nevador---------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
217:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
218:						
Ninemile--------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
219:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
220:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Carvix----------	SWALE 10-14PZ (R023XY202OR)	Favorable	2,000	Basin wildrye		35
		Normal	1,800	Basin big sagebrush		20
		Unfavorable	1,500	Idaho fescue		10
				Bluebunch wheatgrass		10
				Sandberg bluegrass		5
				Thurber needlegrass		5
				Western needlegrass		5
221:						
Ninemile--------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Doyn------------	SR VERY SHALLOW 9-12PZ (R010XC038OR)	Favorable	400	Sandberg bluegrass		50
		Normal	300	Stiff sagebrush		25
		Unfavorable	100	Idaho fescue		10
				Bluebunch wheatgrass		5
				Lomatium		5
222:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
222:						
Edemaps---------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
223:						
Ninemile--------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Madeline--------	SR MOUNTAIN SHALLOW 9-12PZ (R010XC036OR)	Favorable	1,100	Idaho fescue		60
		Normal	600	Wyoming big sagebrush		15
		Unfavorable	300	Bluebunch wheatgrass		8
				Sandberg bluegrass		5
				Thurber needlegrass		5
				Squaw apple		1
224:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Pearlwise-------	DEEP NORTH 12-18PZ (R023XY404OR)	Favorable	1,800	Idaho fescue		60
		Normal	1,500	Needlegrass		15
		Unfavorable	1,200	Mountain big sagebrush		8
				Bluebunch wheatgrass		7
				Bluegrass		5
				Whortleleaf snowberry		5
225:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Reluctan--------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
226:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Reluctan--------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
Rubble land.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
227:						
Ninemile--------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Rock outcrop.						
228:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Rubble land.						
229:						
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Westbutte-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
230:						
Ninemile, very cobbly---------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
Westbutte-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
Ninemile, extremely stony	JUNIPER TABLELAND 10-14PZ (R023XY217OR)	Favorable	1,000	Idaho fescue		40
		Normal	800	Bluebunch wheatgrass		20
		Unfavorable	600	Sandberg bluegrass		10
				Thurber needlegrass		10
				Low sagebrush		10
				Western juniper		10
231:						
Ninemile, very cobbly---------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
231:						
Ninemile, extremely stony	JUNIPER TABLELAND 10-14PZ (R023XY217OR)	Favorable	1,000	Idaho fescue		40
		Normal	800	Bluebunch wheatgrass		20
		Unfavorable	600	Sandberg bluegrass		10
				Thurber needlegrass		10
				Low sagebrush		10
				Western juniper		10
232:						
Ninemile	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Felcher	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
233:						
Noname	ROCKY RIDGES 16-35PZ (R023XY510OR)	Favorable	1,000	Idaho fescue		25
		Normal	800	Curl-leaf mountain mahogany		25
		Unfavorable	600	Letterman needlegrass		5
				Mountain big sagebrush		5
				Sheep fescue		5
				Western needlegrass		5
				Whortleleaf snowberry		5
Dickle	CLAYPAN 16-25PZ (R023XY507OR)	Favorable	1,100	Idaho fescue		45
		Normal	900	Low sagebrush		15
		Unfavorable	700	Onespike oatgrass		10
				Sheep fescue		10
				Letterman needlegrass		5
				Prairie junegrass		5
				Western needlegrass		5
234:						
Noname	ROCKY RIDGES 16-35PZ (R023XY510OR)	Favorable	1,000	Idaho fescue		25
		Normal	800	Curl-leaf mountain mahogany		25
		Unfavorable	600	Letterman needlegrass		5
				Mountain big sagebrush		5
				Sheep fescue		5
				Western needlegrass		5
				Whortleleaf snowberry		5
Duff	SUBALPINE SLOPES 16-35PZ (R023XY509OR)	Favorable	1,400	Idaho fescue		55
		Normal	1,000	Mountain big sagebrush		15
		Unfavorable	800	Whortleleaf snowberry		10
				Letterman needlegrass		5
				Basin wildrye		5
				Bluebunch wheatgrass		5
				Sedge		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
235:						
Norad----------	SILTY 6-10PZ (R024XY011OR)	Favorable	500	Winterfat		60
		Normal	350	Indian ricegrass		15
		Unfavorable	200	Sickle saltbush		10
				Bottlebrush squirreltail		8
				Bud sagebrush		5
236:						
Norad----------	SILTY 6-10PZ (R024XY011OR)	Favorable	500	Winterfat		60
		Normal	350	Indian ricegrass		15
		Unfavorable	200	Sickle saltbush		10
				Bottlebrush squirreltail		8
				Bud sagebrush		5
Spangenburg-----	DRY PONDED CLAY 6-10PZ (R024XY007OR)	Favorable	1,000	Beardless wildrye		60
		Normal	700	Basin big sagebrush		10
		Unfavorable	500	Basin wildrye		10
				Bottlebrush squirreltail		10
				Bluegrass		5
237:						
Nuss----------	SR MOUNTAIN SHALLOW SOUTH 12-16PZ (R010XC054OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	600	Sandberg bluegrass		8
		Unfavorable	400	Idaho fescue		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
238:						
Nuss----------	SR MOUNTAIN SHALLOW NORTH 12-16PZ (R010XC075OR)	Favorable	1,200	Idaho fescue		70
		Normal	900	Bluebunch wheatgrass		10
		Unfavorable	600	Mountain big sagebrush		8
				Sandberg bluegrass		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
239:						
Nuss----------	SR MOUNTAIN SHALLOW SOUTH 12-16PZ (R010XC054OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	600	Sandberg bluegrass		8
		Unfavorable	400	Idaho fescue		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Rock outcrop.						
240:						
Observation-----	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
241:						
Observation-----	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
242:						
Observation-----	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
Royst-----------	SR DRY PINE 14-16PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Western juniper		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
243:						
Observation-----	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
Teguro----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
244:						
Observation-----	SR MOUNTAIN SOUTH 12-16PZ (R010XC047OR)	Favorable	1,400	Bluebunch wheatgrass		50
		Normal	1,000	Idaho fescue		20
		Unfavorable	700	Thurber needlegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Lambring--------	JD SHRUBBY MOUNTAIN NORTH 12-16PZ (R010XB071OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,600	Antelope bitterbrush		15
		Unfavorable	1,200	Bluebunch wheatgrass		8
				Mountain big sagebrush		5
				Whortleleaf snowberry		2
Rock outcrop.						
245:						
Olac----------	THIN SURFACE 8-14PZ (R024XY021OR)	Favorable	500	Black sagebrush		60
		Normal	400	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber needlegrass		5
Atlow-----------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
246:						
Opie----------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
247:						
Oreneva---------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
248:						
Outerkirk-------	SODIC FAN 6-10PZ (R024XY113OR)	Favorable	800	Indian ricegrass		40
		Normal	600	Basin wildrye		20
		Unfavorable	400	Basin big sagebrush		10
				Black greasewood		7
				Wyoming big sagebrush		5
				Bottlebrush squirreltail		5
				Spiny hopsage		5
249:						
Outerkirk-------	DESERT LOAM 6-10PZ (R024XY015OR)	Favorable	700	Shadscale		35
		Normal	500	Bud sagebrush		25
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
250:						
Outerkirk-------	SODIC FAN 6-10PZ (R024XY113OR)	Favorable	800	Indian ricegrass		40
		Normal	600	Basin wildrye		20
		Unfavorable	400	Basin big sagebrush		10
				Black greasewood		7
				Wyoming big sagebrush		5
				Bottlebrush squirreltail		5
				Spiny hopsage		5
Defenbaugh------	LOW SODIC TERRACE 6-10PZ (R024XY013OR)	Favorable	400	Black greasewood		25
		Normal	300	Bud sagebrush		15
		Unfavorable	200	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		7
				Basin wildrye		5
				Beardless wildrye		5
251:						
Ozamis----------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
252:						
Pearlwise-------	ROCKY RIDGES 12-16PZ (R023XY408OR)	Favorable	900	Idaho fescue		40
		Normal	700	Curl-leaf mountain mahogany		20
		Unfavorable	500	Skyline bluegrass		15
				Western needlegrass		10
				Mountain big sagebrush		5
				Whortleleaf snowberry		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
253:						
Pernty----------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
254:						
Pernty----------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
255:						
Pernty----------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
256:						
Pernty----------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Rock outcrop.						
257:						
Pernty----------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
Westbutte-------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Ninemile--------	CLAYPAN 12-16PZ (R023XY216OR)	Favorable	1,000	Idaho fescue		50
		Normal	800	Bluebunch wheatgrass		15
		Unfavorable	600	Low sagebrush		15
				Sandberg bluegrass		8
				Thurber needlegrass		7
258:						
Pits.						
259:						
Playas.						
260:						
Playas.						
Thenarrows------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
261:						
Poall----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
262:						
Poall----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
Gumble----------	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
263:						
Pomerening------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
264:						
Pomerening------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
Flank----------	SHALLOW LAVA 10-12PZ (R023XY222OR)	Favorable	400	Thurber needlegrass		25
		Normal	300	Basin big sagebrush		25
		Unfavorable	200	Bluebunch wheatgrass		20
				Sandberg bluegrass		10
Lava flows.						
265:						
Porterfield-----	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
266:						
Porterfield-----	SR SHALLOW SOUTH 9-12PZ (R010XC050OR)	Favorable	800	Bluebunch wheatgrass		70
		Normal	500	Thurber needlegrass		20
		Unfavorable	300	Sandberg bluegrass		5
				Wyoming big sagebrush		5
267:						
Porterfield-----	SR SHALLOW SOUTH 9-12PZ (R010XC050OR)	Favorable	800	Bluebunch wheatgrass		70
		Normal	500	Thurber needlegrass		20
		Unfavorable	300	Sandberg bluegrass		5
				Wyoming big sagebrush		5
Tincan----------	SR MOUNTAIN NORTH 9-12PZ (R010XC065OR)	Favorable	1,600	Idaho fescue		80
		Normal	1,100	Sandberg bluegrass		5
		Unfavorable	800	Wyoming big sagebrush		5
				Bluebunch wheatgrass		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
268:						
Poujade	SODIC TERRACE 6-10PZ (R024XY014OR)	Favorable	600	Basin big sagebrush		20
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Spiny hopsage		15
				Black greasewood		10
				Basin wildrye		7
				Bottlebrush squirreltail		7
				Shadscale		5
269:						
Poujade	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Basin big sagebrush		10
				Black greasewood		8
				Inland saltgrass		5
				Needleandthread		5
270:						
Poujade	DRY BASIN (R024XY009OR)	Favorable	1,800	Basin wildrye		50
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Basin big sagebrush		10
				Black greasewood		8
				Inland saltgrass		5
				Needleandthread		5
Ausmus	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
271:						
Raz	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
272:						
Raz	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Brace	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
273:						
Raz	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Brace	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
274:						
Reallis---------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
275:						
Reallis---------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
276:						
Reese-----------	LAKE TERRACE (R024XY006OR)	Favorable	900	Beardless wildrye		80
		Normal	700			
		Unfavorable	500			
277:						
Reluctan--------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
278:						
Reluctan--------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
279:						
Riddleranch-----	DROUGHTY SOUTH SLOPES 11-13PZ (R023XY301OR)	Favorable	1,200	Bluebunch wheatgrass		40
		Normal	900	Thurber needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Idaho fescue		8
				Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Balsamroot		5
Lambring--------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Rock outcrop.						
280:						
Riddleranch-----	DROUGHTY SOUTH SLOPES 11-13PZ (R023XY301OR)	Favorable	1,200	Bluebunch wheatgrass		40
		Normal	900	Thurber needlegrass		25
		Unfavorable	700	Basin big sagebrush		10
				Idaho fescue		8
				Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Balsamroot		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
281:						
Rinconflat------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
282:						
Rio King--------	LOAMY BOTTOM (R010XY005OR)	Favorable	7,000	Basin wildrye		85
		Normal	5,000	Bluebunch wheatgrass		5
		Unfavorable	4,000	Bluegrass		5
				Willow		5
283:						
Rio King--------	LOAMY BOTTOM (R010XY005OR)	Favorable	7,000	Basin wildrye		85
		Normal	5,000	Bluebunch wheatgrass		5
		Unfavorable	4,000	Bluegrass		5
				Willow		5
Droval----------	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
284:						
Risley----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
Gumble----------	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
285:						
Risley----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
Gumble----------	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
Torriorthents---	SR SHALLOW ESCARPMENT 9-12PZ (R010XC057OR)	Favorable	400	Bluebunch wheatgrass		40
		Normal	300	Thurber needlegrass		30
		Unfavorable	100	Wyoming big sagebrush		10
				Antelope bitterbrush		8
				Squaw apple		8
286:						
Risley----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
287:						
Robson----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
Anawalt---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
288:						
Robson----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
Fourwheel-------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
289:						
Robson----------	CLAYEY 10-12PZ (R023XY220OR)	Favorable	1,200	Bluebunch wheatgrass		60
		Normal	900	Sandberg bluegrass		10
		Unfavorable	700	Wyoming big sagebrush		10
				Thurber needlegrass		5
				Skyline bluegrass		5
Felcher---------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
290:						
Roca------------	SOUTH SLOPES 8-12PZ (R023XY300OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	700	Thurber needlegrass		15
		Unfavorable	500	Wyoming big sagebrush		10
				Antelope bitterbrush		10
				Indian ricegrass		5
				Sandberg bluegrass		5
				Basin big sagebrush		5
291:						
Rock outcrop.						
Rubble land.						
292:						
Rock outcrop.						
Baconcamp-------	SUBALPINE SLOPES 16-35PZ (R023XY509OR)	Favorable	1,400	Idaho fescue		55
		Normal	1,000	Mountain big sagebrush		15
		Unfavorable	800	Whortleleaf snowberry		10
				Letterman needlegrass		5
				Basin wildrye		5
				Bluebunch wheatgrass		5
				Sedge		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
293:						
Royst----------	SR DRY PINE 14-16PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Western juniper		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
294:						
Rubble land.						
Nuss----------	SR MOUNTAIN SHALLOW SOUTH 12-16PZ (R010XC054OR)	Favorable	900	Bluebunch wheatgrass		60
		Normal	600	Sandberg bluegrass		8
		Unfavorable	400	Idaho fescue		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Ateron----------	SR MOUNTAIN SHALLOW NORTH 12-16PZ (R010XC075OR)	Favorable	1,200	Idaho fescue		70
		Normal	900	Bluebunch wheatgrass		10
		Unfavorable	600	Mountain big sagebrush		8
				Sandberg bluegrass		5
295:						
Sagehen---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Rock outcrop.						
296:						
Sagehen---------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Rock outcrop.						
297:						
Sandgap---------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
298:						
Sandgap---------	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Black greasewood		10
				Needleandthread		10
				Beardless wildrye		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
299:						
Seharney--------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
300:						
Skedaddle-------	DESERT LOAM 6-10PZ (R024XY015OR)	Favorable	700	Shadscale		35
		Normal	500	Bud sagebrush		25
		Unfavorable	400	Indian ricegrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		5
Atlow-----------	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Rock outcrop.						
301:						
Skedaddle-------	DROUGHTY SHALLOW SLOPES 6-10PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Bud sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Atlow-----------	SHALLOW LOAMY SLOPES 6-10PZ (R024XY030OR)	Favorable	700	Indian ricegrass		30
		Normal	500	Wyoming big sagebrush		25
		Unfavorable	300	Thurber needlegrass		10
				Spiny hopsage		10
Rock outcrop.						
302:						
Skedaddle-------	DROUGHTY SHALLOW SLOPES 6-10PZ (R024XY031OR)	Favorable	600	Shadscale		40
		Normal	400	Indian ricegrass		15
		Unfavorable	200	Bud sagebrush		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
Rock outcrop.						
303:						
Skedaddle, south slopes---------	SOUTH SLOPES 6-10PZ (R024XY032OR)	Favorable	500	Indian ricegrass		25
		Normal	300	Bluebunch wheatgrass		15
		Unfavorable	200	Desert needlegrass		15
				Wyoming big sagebrush		10
				Purple sage		8
				Ephedra		5
				Spiny hopsage		5
Skedaddle, north slopes---------	NORTH SLOPES 6-10PZ (R024XY033OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber needlegrass		30
		Unfavorable	500	Wyoming big sagebrush		15
				Indian ricegrass		5
				Ephedra		5
				Spiny hopsage		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
304:						
Skidoosprings---	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
305:						
Skidoosprings---	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
306:						
Skunkfarm-------	BASIN DRY MEADOW (R023XY118OR)	Favorable	3,000	Beardless wildrye		80
		Normal	2,000			
		Unfavorable	1,500			
Cumulic Haploxerolls---	BASIN WILLOW (R023XY119OR)	Favorable	4,000	Sandbar willow		30
		Normal	3,000	Broadleaf arrowhead		20
		Unfavorable	2,000	Yellow willow		20
				Beardless wildrye		8
				Baltic rush		5
				Sedge		5
307:						
Skunkfarm-------	BASIN DRY MEADOW (R023XY118OR)	Favorable	3,000	Beardless wildrye		80
		Normal	2,000			
		Unfavorable	1,500			
Doubleo---------	SEMI-WET MARSH (R023XY116OR)	Favorable	7,000	Cattail		75
		Normal	5,000	Hardstem bulrush		15
		Unfavorable	4,000	Broadfruit burreed		5
308:						
Skunkfarm-------	BASIN DRY MEADOW (R023XY118OR)	Favorable	3,000	Beardless wildrye		80
		Normal	2,000			
		Unfavorable	1,500			
Mcbain----------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5
Doubleo---------	SEMI-WET MARSH (R023XY116OR)	Favorable	7,000	Cattail		75
		Normal	5,000	Hardstem bulrush		15
		Unfavorable	4,000	Broadfruit burreed		5
309:						
Skunkfarm-------	BASIN DRY MEADOW (R023XY118OR)	Favorable	3,000	Beardless wildrye		80
		Normal	2,000			
		Unfavorable	1,500			
Skidoosprings---	SODIC BOTTOM (R024XY003OR)	Favorable	1,700	Basin wildrye		60
		Normal	1,400	Black greasewood		15
		Unfavorable	1,100	Inland saltgrass		5
310:						
Spangenburg-----	CLAYEY PLAYETTE (R024XY008OR)	Favorable	700	Wyoming big sagebrush		40
		Normal	500	Bottlebrush squirreltail		20
		Unfavorable	300	Sandberg bluegrass		10
				Thurber needlegrass		10
				Indian ricegrass		8
311:						
Spangenburg-----	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
312:						
Spangenburg-----	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
313:						
Srednic---------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
Aval----------	SANDY LOAM 10-12PZ (R023XY213OR)	Favorable	1,400	Needleandthread		40
		Normal	1,200	Thurber needlegrass		20
		Unfavorable	1,000	Basin big sagebrush		10
				Basin wildrye		10
				Indian ricegrass		5
314:						
Stampede--------	DROUGHTY LOAM 11-13PZ (R023XY316OR)	Favorable	1,400	Idaho fescue		35
		Normal	1,200	Thurber needlegrass		25
		Unfavorable	900	Bluebunch wheatgrass		20
				Basin big sagebrush		10
				Sandberg bluegrass		5
315:						
Swaler----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
316:						
Swaler----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
Swalesilver-----	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
317:						
Swalesilver-----	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
318:						
Swalesilver-----	SHALLOW SWALE 10-14PZ (R023XY324OR)	Favorable	900	Sandberg bluegrass		60
		Normal	700	Low sagebrush		15
		Unfavorable	500	Beardless wildrye		10
319:						
Swalesilver-----	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
320:						
Teguro----------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
321:						
Teguro----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
322:						
Teguro----------	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
323:						
Teguro----------	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
Anatone, moist--	SR DRY PINE 14-16PZ (R010XC082OR)	Favorable	1,200	Idaho fescue		40
		Normal	900	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Ponderosa pine		5
				Western juniper		5
324:						
Teguro----------	SR MOUNTAIN SHALLOW 12-16PZ (R010XC037OR)	Favorable	1,500	Idaho fescue		70
		Normal	1,200	Bluebunch wheatgrass		15
		Unfavorable	1,000	Mountain big sagebrush		10
				Sandberg bluegrass		5
Ateron----------	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
325:						
Thenarrows------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
Duckclub--------	SODIC LAKE TERRACE (R024XY114OR)	Favorable	1,000	Inland saltgrass		60
		Normal	800	Lemmon's alkaligrass		20
		Unfavorable	600	Black greasewood		15
326:						
Thenarrows------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
326:						
Duckclub--------	SODIC LAKE TERRACE (R024XY114OR)	Favorable	1,000	Inland saltgrass		60
		Normal	800	Lemmon's alkaligrass		20
		Unfavorable	600	Black greasewood		15
Dentdraw--------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
327:						
Thenarrows------	SODIC MEADOW (R024XY002OR)	Favorable	1,200	Alkali sacaton		25
		Normal	1,000	Sandberg bluegrass		20
		Unfavorable	700	Inland saltgrass		20
				Alkali cordgrass		10
Duckclub--------	SODIC LAKE TERRACE (R024XY114OR)	Favorable	1,000	Inland saltgrass		60
		Normal	800	Lemmon's alkaligrass		20
		Unfavorable	600	Black greasewood		15
Sandgap---------	SODIC DUNES (R024XY005OR)	Favorable	700	Indian ricegrass		25
		Normal	500	Basin big sagebrush		15
		Unfavorable	300	Basin wildrye		10
				Black greasewood		10
				Needleandthread		10
				Beardless wildrye		5
328:						
Ticino----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
329:						
Ticino----------	JD SHRUBBY MOUNTAIN CLAYEY 12-16PZ (R010XB028OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,500	Antelope bitterbrush		10
		Unfavorable	1,000	Thurber needlegrass		5
				Bluebunch wheatgrass		5
				Bluegrass		5
				Mountain big sagebrush		5
Observation-----	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
330:						
Ticino----------	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
331:						
Toll	DUNES (R024XY110OR)	Favorable	800	Needleandthread		30
		Normal	500	Indian ricegrass		20
		Unfavorable	300	Basin big sagebrush		15
				Basin wildrye		15
				Beardless wildrye		10
332:						
Toll	DUNES (R024XY110OR)	Favorable	800	Needleandthread		30
		Normal	500	Indian ricegrass		20
		Unfavorable	300	Basin big sagebrush		15
				Basin wildrye		15
				Beardless wildrye		10
Nevador	SANDY LOAM 8-10PZ (R024XY018OR)	Favorable	800	Needleandthread		50
		Normal	600	Indian ricegrass		30
		Unfavorable	400	Basin big sagebrush		10
				Thurber needlegrass		5
				Basin wildrye		5
333:						
Torriorthents	SR SHALLOW ESCARPMENT 9-12PZ (R010XC057OR)	Favorable	400	Bluebunch wheatgrass		40
		Normal	300	Thurber needlegrass		30
		Unfavorable	100	Wyoming big sagebrush		10
				Antelope bitterbrush		8
				Squaw apple		8
Gumble	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
334:						
Tumtum	SHALLOW LOAM 8-10PZ (R024XY017OR)	Favorable	700	Thurber needlegrass		35
		Normal	500	Indian ricegrass		15
		Unfavorable	300	Wyoming big sagebrush		15
				Bluebunch wheatgrass		15
				Bottlebrush squirreltail		10
				Spiny hopsage		10
335:						
Tumtum	SR SHALLOW 9-12PZ (R010XC035OR)	Favorable	1,000	Bluebunch wheatgrass		50
		Normal	600	Thurber needlegrass		30
		Unfavorable	300	Wyoming big sagebrush		8
336:						
Turpin	LOW SODIC TERRACE 6-10PZ (R024XY013OR)	Favorable	400	Black greasewood		25
		Normal	300	Bud sagebrush		15
		Unfavorable	200	Shadscale		15
				Spiny hopsage		15
				Bottlebrush squirreltail		7
				Basin wildrye		5
				Beardless wildrye		5
337:						
Vanwyper	NORTH SLOPES 6-10PZ (R024XY033OR)	Favorable	1,000	Bluebunch wheatgrass		40
		Normal	800	Thurber needlegrass		30
		Unfavorable	500	Wyoming big sagebrush		15
				Indian ricegrass		5
				Ephedra		5
				Spiny hopsage		5
Rock outcrop.						

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
338:						
Vergas----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
339:						
Vil----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
340:						
Vining----------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
341:						
Vining----------	LOAMY 8-10PZ (R024XY016OR)	Favorable	900	Indian ricegrass		30
		Normal	700	Thurber needlegrass		30
		Unfavorable	400	Bluebunch wheatgrass		15
				Wyoming big sagebrush		10
				Basin big sagebrush		5
				Bottlebrush squirreltail		5
Tuffo----------	SOUTH SLOPES 6-10PZ (R024XY032OR)	Favorable	500	Indian ricegrass		25
		Normal	300	Bluebunch wheatgrass		15
		Unfavorable	200	Desert needlegrass		15
				Wyoming big sagebrush		10
				Purple sage		8
				Ephedra		5
				Spiny hopsage		5
342:						
Vitale----------	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
343:						
Vitale----------	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
344:						
Vitale----------	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
344:						
Merlin----------	JD MOUNTAIN CLAYPAN 12-16PZ (R010XB080OR)	Favorable	700	Idaho fescue		50
		Normal	500	Bluebunch wheatgrass		15
		Unfavorable	300	Low sagebrush		15
				Onespike oatgrass		8
				Sandberg bluegrass		5
Doyn----------	SR MOUNTAIN VERY SHALLOW 12-16PZ (R010XC039OR)	Favorable	600	Onespike oatgrass		30
		Normal	400	Stiff sagebrush		25
		Unfavorable	200	Idaho fescue		15
				Sandberg bluegrass		15
				Bluebunch wheatgrass		10
345:						
Vitale----------	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
Observation-----	SR MAHOGANY MOUNTAIN LOAM 14-18PZ (R010XC080OR)	Favorable	1,500	Idaho fescue		25
		Normal	1,200	Curl-leaf mountain mahogany		25
		Unfavorable	1,000	Antelope bitterbrush		15
				Bluebunch wheatgrass		15
				Mountain big sagebrush		5
				Ponderosa pine		5
346:						
Vitale----------	JD SHRUBBY MOUNTAIN SOUTH 12-16PZ (R010XB046OR)	Favorable	1,700	Bluebunch wheatgrass		40
		Normal	1,300	Idaho fescue		15
		Unfavorable	1,000	Antelope bitterbrush		15
				Indian ricegrass		10
				Basin wildrye		5
Rock outcrop.						
347:						
Voltage---------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5
348:						
Voltage---------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5
Crowcamp--------	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
349:						
Voltage---------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5
Crowcamp--------	PONDED CLAY (R023XY200OR)	Favorable	1,800	Sandberg bluegrass		45
		Normal	1,500	Beardless wildrye		15
		Unfavorable	1,000	Silver sagebrush		10
				Mat muhly		5
350:						
Voltage---------	DRY FLOODPLAIN (R024XY004OR)	Favorable	4,500	Basin wildrye		75
		Normal	3,000	Beardless wildrye		10
		Unfavorable	1,000	Basin big sagebrush		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
350:						
Widowspring-----	LOAMY BOTTOM (R023XY104OR)	Favorable	6,000	Basin wildrye		70
		Normal	4,500	Basin big sagebrush		10
		Unfavorable	2,000	Beardless wildrye		5
351:						
Wagontire-------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
352:						
Wagontire-------	CLAYPAN 10-12PZ (R023XY214OR)	Favorable	900	Bluebunch wheatgrass		40
		Normal	700	Low sagebrush		20
		Unfavorable	500	Sandberg bluegrass		10
				Balsamroot		5
				Lomatium		5
				Lupine		5
Vil-------------	LOAMY 10-12PZ (R023XY212OR)	Favorable	1,000	Thurber needlegrass		40
		Normal	800	Bluebunch wheatgrass		25
		Unfavorable	600	Sandberg bluegrass		10
				Wyoming big sagebrush		10
				Bottlebrush squirreltail		8
				Indian ricegrass		7
				Spiny hopsage		5
353:						
Waspo-----------	SR ADOBELAND 9-12PZ (R010XC018OR)	Favorable	1,800	Basin wildrye		70
		Normal	1,500	Bluebunch wheatgrass		25
		Unfavorable	1,000	Basin big sagebrush		5
Poall-----------	SR CLAYEY 9-12PZ (R010XC021OR)	Favorable	1,500	Bluebunch wheatgrass		60
		Normal	1,000	Thurber needlegrass		8
		Unfavorable	600	Sandberg bluegrass		5
				Wyoming big sagebrush		5
				Basin big sagebrush		5
				Basin wildrye		5
354:						
Water.						
355:						
Welch-----------	SUBALPINE MEADOW (R023XY506OR)	Favorable	1,600	Tufted hairgrass		45
		Normal	1,200	Sedge		20
		Unfavorable	800	Alpine timothy		8
				Willow		8
356:						
Welch-----------	WET MEADOW (R023XY416OR)	Favorable	2,500	Tufted hairgrass		60
		Normal	2,000	Baltic rush		5
		Unfavorable	1,000	Nebraska sedge		5
				Northern mannagrass		5
				Reedgrass		5
357:						
Welch-----------	MOUNTAIN MEADOW (R010XY002OR)	Favorable	4,000	Tufted hairgrass		60
		Normal	3,000	Bluegrass		5
		Unfavorable	2,000	Rush		5
				Willow		5
Roschene--------	MOUNTAIN LOAMY BOTTOM (R010XY006OR)	Favorable	5,000	Basin wildrye		70
		Normal	4,000	Willow		20
		Unfavorable	3,000	Idaho fescue		5
				Bluegrass		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
357:						
Cumulic Haploxerolls---	WILLOW-RIPARIAN (BOOTH-YELLOW WILLOW) (R010XY012OR)	Favorable	4,000	Sedge		35
		Normal	3,000	Willow		30
		Unfavorable	2,000	Tufted hairgrass		20
				Rush		8
				Rose		5
358:						
Wenas----------	MEADOW (R010XY004OR)	Favorable	5,000	Tufted hairgrass		65
		Normal	4,000	Sedge		20
		Unfavorable	3,000	Rush		8
				Bluegrass		5
Loupence--------	LOAMY BOTTOM (R010XY005OR)	Favorable	7,000	Basin wildrye		85
		Normal	5,000	Bluebunch wheatgrass		5
		Unfavorable	4,000	Bluegrass		5
				Willow		5
Cumulic Haploxerolls---	WILLOW-RIPARIAN (BOOTH-YELLOW WILLOW) (R010XY012OR)	Favorable	3,000	Sedge		35
		Normal	2,000	Willow		30
		Unfavorable	1,000	Tufted hairgrass		20
359:						
Westbutte-------	GRAVELLY NORTH SLOPES 12-16PZ (R023XY314OR)	Favorable	1,400	Idaho fescue		55
		Normal	1,200	Threetip sagebrush		15
		Unfavorable	900	Sandberg bluegrass		10
				Skyline bluegrass		10
				Bluebunch wheatgrass		5
				Mountain big sagebrush		5
360:						
Westbutte-------	LOAMY 12-16PZ (R023XY318OR)	Favorable	1,400	Idaho fescue		50
		Normal	1,000	Thurber needlegrass		15
		Unfavorable	700	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Basin big sagebrush		5
361:						
Westbutte-------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Bocker----------	SHALLOW NORTH 12-16PZ (R023XY312OR)	Favorable	1,200	Idaho fescue		50
		Normal	900	Low sagebrush		20
		Unfavorable	700	Bluebunch wheatgrass		10
				Sandberg bluegrass		5
362:						
Westbutte-------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
362:						
Lambring--------	NORTH SLOPES 12-16PZ	Favorable	1,800	Idaho fescue		45
	(R023XY310OR)	Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Rock outcrop.						
363:						
Westbutte-------	SR MOUNTAIN NORTH 12-16PZ	Favorable	2,200	Idaho fescue		75
	(R010XC066OR)	Normal	1,600	Bluebunch wheatgrass		8
		Unfavorable	1,000	Mountain big sagebrush		5
Rock outcrop.						
364:						
Westbutte-------	SR MOUNTAIN SOUTH 12-16PZ	Favorable	1,400	Bluebunch wheatgrass		50
	(R010XC047OR)	Normal	1,000	Idaho fescue		20
		Unfavorable	700	Thurber needlegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Rock outcrop.						
365:						
Westbutte-------	SR MOUNTAIN SOUTH 12-16PZ	Favorable	1,400	Bluebunch wheatgrass		50
	(R010XC047OR)	Normal	1,000	Idaho fescue		20
		Unfavorable	700	Thurber needlegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Lambring--------	SR MOUNTAIN NORTH 12-16PZ	Favorable	2,200	Idaho fescue		75
	(R010XC066OR)	Normal	1,600	Bluebunch wheatgrass		8
		Unfavorable	1,000	Mountain big sagebrush		5
Rock outcrop.						
366:						
Westbutte-------	SR MOUNTAIN SOUTH 12-16PZ	Favorable	1,400	Bluebunch wheatgrass		50
	(R010XC047OR)	Normal	1,000	Idaho fescue		20
		Unfavorable	700	Thurber needlegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5
Lambring--------	SR MAHOGANY ROCKLAND 12+PZ	Favorable	1,300	Curl-leaf mountain mahogany		40
	(R010XC059OR)	Normal	900	Bluebunch wheatgrass		30
		Unfavorable	600	Idaho fescue		15
				Antelope bitterbrush		10
				Thurber needlegrass		5
				Western juniper		5
Rock outcrop.						
367:						
Westbutte-------	SR MOUNTAIN SOUTH 12-16PZ	Favorable	1,400	Bluebunch wheatgrass		50
	(R010XC047OR)	Normal	1,000	Idaho fescue		20
		Unfavorable	700	Thurber needlegrass		5
				Antelope bitterbrush		5
				Mountain big sagebrush		5
				Squaw apple		5

Table 6.--Ecological Sites, Plant Associations, and Characteristic Plant Communities--Continued

Map symbol and soil name	Ecological site or plant association	Total production		Characteristic vegetation	Composition	
		Kind of year	Dry Weight		Forest	Range
			Lb/acre		*Pct*	*Pct*
367:						
Lambring--------	JD SHRUBBY MOUNTAIN NORTH 12-16PZ (R010XB071OR)	Favorable	2,000	Idaho fescue		60
		Normal	1,600	Antelope bitterbrush		15
		Unfavorable	1,200	Bluebunch wheatgrass		8
				Mountain big sagebrush		5
				Whortleleaf snowberry		2
Rock outcrop.						
368:						
Westbutte-------	SR MOUNTAIN NORTH 12-16PZ (R010XC066OR)	Favorable	2,200	Idaho fescue		75
		Normal	1,600	Bluebunch wheatgrass		8
		Unfavorable	1,000	Mountain big sagebrush		5
Observation-----	SR MOUNTAIN CLAYEY 12-16PZ (R010XC032OR)	Favorable	2,000	Idaho fescue		70
		Normal	1,500	Bluebunch wheatgrass		10
		Unfavorable	1,000	Mountain big sagebrush		10
				Thurber needlegrass		5
369:						
Westbutte-------	NORTH SLOPES 12-16PZ (R023XY310OR)	Favorable	1,800	Idaho fescue		45
		Normal	1,400	Basin wildrye		10
		Unfavorable	1,000	Bluebunch wheatgrass		10
				Mountain big sagebrush		10
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Common snowberry		5
Rock outcrop.						
Pernty----------	SOUTH SLOPES 12-16PZ (R023XY302OR)	Favorable	1,400	Bluebunch wheatgrass		40
		Normal	1,100	Mountain big sagebrush		10
		Unfavorable	700	Idaho fescue		5
				Sandberg bluegrass		5
				Antelope bitterbrush		5
				Arrowleaf balsamroot		5
370:						
Widowspring-----	LOAMY BOTTOM (R023XY104OR)	Favorable	6,000	Basin wildrye		70
		Normal	4,500	Basin big sagebrush		10
		Unfavorable	2,000	Beardless wildrye		5
371:						
Windybutte------	SILT LOAM TERRACE 10-12PZ (R023XY019OR)	Favorable	1,200	Bluebunch wheatgrass		50
		Normal	1,000	Basin wildrye		20
		Unfavorable	800	Basin big sagebrush		15
				Thurber needlegrass		10
				Prairie junegrass		5
372:						
Wolverine-------	DUNES (R024XY110OR)	Favorable	800	Needleandthread		30
		Normal	500	Indian ricegrass		20
		Unfavorable	300	Basin big sagebrush		15
				Basin wildrye		15
				Beardless wildrye		10
373:						
Denied access.						

Table 7a.--Forestland Management (Part 1)

(Only the soils that currently support forestland are listed)

Soil name and map symbol	Management concerns				
	Potential erosion hazard (off-road)	Soil rutting hazard	Suitability for roads and landings (natural surface)	Construction limitations for roads and landings	Operability of wheeled and tracked equipment
8:					
Anatone, moist	Moderate	Slight	Moderately suited	Severe	Moderately suited
Anatone.					
10:					
Anatone--------	Severe	Moderate	Poorly suited	Severe	Poorly suited
Egyptcreek-----	Severe	Severe	Poorly suited	Severe	Poorly suited
Rock outcrop.					
11:					
Anatone--------	Severe	Moderate	Poorly suited	Severe	Moderately suited
Minam.					
Rock outcrop.					
126:					
Gaib-----------	Slight	Moderate	Moderately suited	Severe	Well suited
127:					
Gaib-----------	Slight	Moderate	Moderately suited	Severe	Well suited
Ateron.					
128:					
Gaib-----------	Severe	Severe	Poorly suited	Severe	Poorly suited
Rock outcrop.					
153:					
Klicker--------	Severe	Severe	Poorly suited	Severe	Poorly suited
154:					
Klicker--------	Moderate	Moderate	Moderately suited	Severe	Moderately suited
162:					
Lambring.					
Egyptcreek-----	Severe	Severe	Poorly suited	Severe	Poorly suited
Rock outcrop.					
215:					
Mound----------	Slight	Severe	Poorly suited	Moderate	Moderately suited

Table 7a.--Forestland Management (Part 1)--Continued

Soil name and map symbol	Management concerns				
	Potential erosion hazard (off-road)	Soil rutting hazard	Suitability for roads and landings (natural surface)	Construction limitations for roads and landings	Operability of wheeled and tracked equipment
242:					
Observation.					
Royst----------	Moderate	Severe	Poorly suited	Moderate	Moderately suited
Merlin.					
293:					
Royst----------	Slight	Severe	Moderately suited	Slight	Moderately suited
Merlin.					
323:					
Teguro.					
Anatone--------	Moderate	Slight	Moderately suited	Severe	Moderately suited

Table 7b.--Forestland Management (Part 2)

(Only the soils that currently support forestland are listed)

Soil name and map symbol	Management concerns					
	Mechanical site preparation (surface)	Mechanical site preparation (deep)	Suitability for hand planting	Suitability for mechanical planting	Seedling mortality	Damage to soil by fire
8:						
Anatone, moist	Poorly suited	Unsuited	Moderately suited	Poorly suited	High	Moderate
Anatone.						
10:						
Anatone--------	Poorly suited	Unsuited	Moderately suited	Unsuited	High	Moderate
Egyptcreek-----	Poorly suited	Unsuited	Moderately suited	Unsuited	High	Moderate
Rock outcrop.						
11:						
Anatone--------	Poorly suited	Unsuited	Moderately suited	Unsuited	High	Moderate
Minam.						
Rock outcrop.						
126:						
Gaib-----------	Suited	Unsuited	Well suited	Moderately suited	High	Slight
127:						
Gaib-----------	Suited	Unsuited	Well suited	Moderately suited	High	Slight
Ateron.						
128:						
Gaib-----------	Unsuited	Unsuited	Moderately suited	Unsuited	High	Moderate
Rock outcrop.						
153:						
Klicker--------	Unsuited	Unsuited	Moderately suited	Unsuited	Medium	Slight
154:						
Klicker--------	Poorly suited	Unsuited	Poorly suited	Unsuited	Medium	Moderate
162:						
Lambring.						
Egyptcreek-----	Poorly suited	Unsuited	Moderately suited	Unsuited	High	Moderate
Rock outcrop.						
215:						
Mound----------	Poorly suited	Poorly suited	Poorly suited	Unsuited	Medium	Moderate

Table 7b.--Forestland Management (Part 2)--Continued

Soil name and map symbol	Management concerns					
	Mechanical site preparation (surface)	Mechanical site preparation (deep)	Suitability for hand planting	Suitability for mechanical planting	Seedling mortality	Damage to soil by fire
242:						
Observation.						
Royst	Poorly suited	Poorly suited	Moderately suited	Unsuited	Medium	Moderate
Merlin.						
293:						
Royst	Poorly suited	Poorly suited	Moderately suited	Unsuited	Medium	Moderate
Merlin.						
323:						
Teguro.						
Anatone	Poorly suited	Unsuited	Moderately suited	Poorly suited	High	Moderate

Table 8.--Forestland Productivity

(Only the soils that currently support forestland are listed. Absence of an entry indicates that no data were collected)

Soil name and map symbol	Common trees	Potential productivity[1]				
		100-year site index	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Fbm/acre	Yr	Cu ft/acre	Yr
8:						
Anatone, moist--	Ponderosa pine[2]	62[3]	26,000	190	48	50
	Western juniper	---	---	---	---	---
Anatone.						
10:						
Anatone---------	Ponderosa pine[2]	62[3]	26,000	190	48	50
	Western juniper	---	---	---	---	---
Egyptcreek------	Ponderosa pine[2]	61[3]	25,300	190	47	50
	Western juniper	---	---	---	---	---
Rock outcrop.						
11:						
Anatone---------	Ponderosa pine[2]	62[3]	26,000	190	48	50
	Western juniper	---	---	---	---	---
Minam.						
Rock outcrop.						
126:						
Gaib------------	Ponderosa pine[2]	66[3]	29,200	190	51	50
	Western juniper	---	---	---	---	---
127:						
Gaib------------	Ponderosa pine[2]	66[3]	29,200	190	51	50
	Western juniper	---	---	---	---	---
Ateron.						
128:						
Gaib------------	Ponderosa pine[2]	66[3]	29,200	190	51	50
	Western juniper	---	---	---	---	---
Rock outcrop.						
153:						
Klicker---------	Ponderosa pine[2]	65[3]	28,500	190	50	50
	Douglas fir	---	---	---	---	---
154:						
Klicker---------	Ponderosa pine[2]	65[3]	28,500	190	50	50
	Western juniper	---	---	---	---	---
162:						
Lambring.						
Egyptcreek------	Ponderosa pine[2]	61[3]	25,300	190	47	50
	Western juniper	---	---	---	---	---
Rock outcrop.						
215:						
Mound-----------	Ponderosa pine[2]	59[3]	25,200	200	45	50
	Western juniper	---	---	---	---	---

See footnotes at end of table.

Table 8.--Forestland Productivity--Continued

Soil name and map symbol	Common trees	Potential productivity[1]				
		100-year site index	Total yield (Scribner rule)	CMAI age	Annual growth	CMAI age
			Fbm/acre	Yr	Cu ft/acre	Yr
242: Observation.						
Royst	Ponderosa pine[2]	58[3]	24,400	200	44	50
	Western juniper	---	---	---	---	---
Merlin.						
293:						
Royst	Ponderosa pine[2]	58[3]	24,400	200	44	50
	Western juniper	---	---	---	---	---
Merlin.						
323: Teguro.						
Anatone	Ponderosa pine[2]	62[3]	26,000	190	48	50
	Western juniper	---	---	---	---	---

[1] All yield data based on a fully stocked, even-aged stand.
[2] Recommended trees to manage or plant.
[3] Average site index computed from three plots or less.

Table 9.--Recreation

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Actem	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.03
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.03	Content of large stones	0.03		
2:							
Actem	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.04	Slope	0.04		
3:							
Actem	45	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.03
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.03	Content of large stones	0.03		
Robson	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.54
		Restricted permeability	0.96	Restricted permeability	0.96	Too stony	0.53
		Content of large stones	0.54	Content of large stones	0.54	Dusty	0.50
		Too stony	0.53	Too stony	0.53		
		Dusty	0.50	Dusty	0.50		
4:							
Alvodest	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00		
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5:							
Alvodest	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00		
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
Playas	35	Not rated		Not rated		Not rated	
6:							
Alyan	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.06	Gravel content	0.06		
		Slope	0.04	Slope	0.04		
7:							
Anatone	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
8:							
Anatone, moist	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.02
		Slope	1.00	Slope	1.00		
		Gravel content	0.86	Gravel content	0.86		
Anatone	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.02
		Slope	1.00	Slope	1.00	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
9:							
Anatone	45	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.86	Gravel content	0.86		
		Slope	0.37	Slope	0.37		
Teguro	25	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Slope	0.37	Slope	0.37		
		Gravel content	0.25	Gravel content	0.25		
Observation	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Gravel content	0.52	Gravel content	0.52	Content of large stones	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.01	Content of large stones	0.01		
10:							
Anatone, moist	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.03
		Gravel content	1.00	Gravel content	1.00		
		Content of large stones	0.03	Content of large stones	0.03		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
10:							
Egyptcreek	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
Rock outcrop	15	Not rated		Not rated		Not rated	
11:							
Anatone, moist	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00	Content of large stones	0.03
		Slope	1.00	Slope	1.00		
		Content of large stones	0.03	Content of large stones	0.03		
Minam	20	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.08	Gravel content	0.08		
Rock outcrop	15	Not rated		Not rated		Not rated	
12:							
Anatone	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
Teguro	30	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.37	Slope	0.37		
Rock outcrop	20	Not rated		Not rated		Not rated	
13:							
Anatone	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.03
		Gravel content	1.00	Gravel content	1.00		
		Content of large stones	0.03	Content of large stones	0.03		
Westbutte	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.26	Content of large stones	0.26	Content of large stones	0.26
Rock outcrop	15	Not rated		Not rated		Not rated	
14:							
Anawalt	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.05	Gravel content	0.05		
15:							
Anawalt	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.18
		Slope	1.00	Slope	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.05	Gravel content	0.05		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
15:							
Lonely	35	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.18
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
16:							
Anawalt	60	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.05	Gravel content	0.05		
Oreneva	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Gravel content	0.25	Gravel content	0.25		
17:							
Anawalt	45	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.05	Gravel content	0.05		
Raz	40	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Contents of large stones	0.26
		Content of large stones	0.26	Content of large stones	0.26		
18:							
Ateron	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Gravel content	0.03	Gravel content	0.03		
19:							
Ateron	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
Rubble land	35	Not rated		Not rated		Not rated	
20:							
Ateron	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	1.00
		Too stony	1.00	Too stony	1.00	Slope	0.92
		Content of large stones	1.00	Content of large stones	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20:							
Observation	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.16	Slope	0.16		
21:							
Atlow	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Slope	1.00	Slope	1.00	Dusty	0.50
		Too stony	0.53	Too stony	0.53	Slope	0.18
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
22:							
Atlow	70	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Slope	1.00	Slope	1.00	Dusty	0.50
		Too stony	0.53	Too stony	0.53	Slope	0.18
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
Rock outcrop	15	Not rated		Not rated		Not rated	
23:							
Atlow	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
Rock outcrop	15	Not rated		Not rated		Not rated	
24:							
Atlow	55	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Slope	1.00	Slope	1.00	Dusty	0.50
		Too stony	0.53	Too stony	0.53	Slope	0.18
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
Skedaddle	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.61
		Slope	1.00	Slope	1.00	Too stony	0.53
		Content of large stones	0.61	Content of large stones	0.61	Slope	0.18
		Too stony	0.53	Too stony	0.53		
25:							
Ausmus	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
26:							
Ausmus	85	Very limited		Very limited		Not limited	
		Sodium content	1.00	Sodium content	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
27:							
Baconcamp	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.92
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
28:							
Baconcamp	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.32
		Content of large stones	0.32	Content of large stones	0.32		
Clamp	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.61
		Slope	0.84	Slope	0.84		
		Content of large stones	0.61	Content of large stones	0.61	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.21	Restricted permeability	0.21		
29:							
Baconcamp	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Clamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.61
		Content of large stones	0.61	Content of large stones	0.61	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.21	Restricted permeability	0.21		
30:							
Baconcamp	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
Clamp	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Content of large stones	0.94
		Content of large stones	0.94	Content of large stones	0.94		
		Restricted permeability	0.21	Restricted permeability	0.21		
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
31:							
Baconcamp	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.08	Content of large stones	0.08	Content of large stones	0.08
		Slope	0.04	Slope	0.04		
Rock outcrop	15	Not rated		Not rated		Not rated	
32:							
Baconcamp	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Rock outcrop	15	Not rated		Not rated		Not rated	
33:							
Baconcamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Rock outcrop	30	Not rated		Not rated		Not rated	
Hackwood	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.11	Gravel content	0.11		
34:							
Baconcamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Hapgood	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.36	Gravel content	0.36		
Rock outcrop	15	Not rated		Not rated		Not rated	
35:							
Baconcamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
Krackle	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
Rock outcrop	15	Not rated		Not rated		Not rated	
36:							
Berdugo	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
37:							
Berdugo	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
Catlow	35	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.21	Restricted permeability	0.21		
		Gravel content	0.18	Gravel content	0.18		
38:							
Bigfrog	45	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	0.98
		Slope	1.00	Slope	1.00	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
		Gravel content	0.03	Gravel content	0.03		
Brock	40	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Slope	0.98
		Slope	1.00	Slope	1.00		
		Gravel content	0.74	Gravel content	0.74		
39:							
Bocker	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Content of large stones	0.42
		Slope	1.00	Slope	1.00		
		Content of large stones	0.42	Content of large stones	0.42		
		Gravel content	0.02	Gravel content	0.02		
Westbutte	35	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Slope	1.00	Slope	1.00	Content of large stones	0.94
		Content of large stones	0.94	Content of large stones	0.94		
40:							
Boravall	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00		
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
Playas	30	Not rated		Not rated		Not rated	
41:							
Borobey	85	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.04	Slope	0.04		
42:							
Boulder Lake	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.45	Restricted permeability	0.45		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
43:							
Boulder Lake	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.45	Restricted permeability	0.45		
Merlin	20	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.89	Gravel content	0.89		
		Restricted permeability	0.45	Restricted permeability	0.45		
44:							
Boulder Lake	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.45	Restricted permeability	0.45		
Spangenburg	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
45:							
Brabble	50	Very limited		Very limited		Not limited	
		Slope	1.00	Slope	1.00		
		Depth to cemented pan	0.20	Depth to cemented pan	0.20		
		Gravel content	0.11	Gravel content	0.11		
Calderwood	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Gravel content	1.00	Gravel content	1.00		
		Slope	1.00	Slope	1.00		
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
46:							
Brace	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Gravel content	0.71	Gravel content	0.71	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Slope	0.37	Slope	0.37		
		Depth to cemented pan	0.29	Depth to cemented pan	0.29		
Coztur	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.35
		Slope	0.37	Slope	0.37		
		Content of large stones	0.35	Content of large stones	0.35		
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
47:							
Brace	45	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.37	Slope	0.37		
		Depth to cemented pan	0.29	Depth to cemented pan	0.29		
Vergas	40	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.96	Restricted permeability	0.96		
48:							
Bruncan, thick surface	50	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Depth to cemented pan	1.00	Depth to cemented pan	1.00		
Bruncan, thin surface	35	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Depth to cemented pan	1.00	Depth to cemented pan	1.00		
49:							
Brunzell	90	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.32	Gravel content	0.32		
50:							
Bucklake	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.05
		Content of large stones	0.05	Content of large stones	0.05		
		Gravel content	0.01	Gravel content	0.01		
51:							
Bucklake	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.26
		Content of large stones	0.26	Content of large stones	0.26		
Mahoon	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.18
		Content of large stones	0.18	Content of large stones	0.18		
		Gravel content	0.01	Gravel content	0.01		
Rubble land	20	Not rated		Not rated		Not rated	
52:							
Calderwood	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Gravel content	1.00	Gravel content	1.00		
		Slope	1.00	Slope	1.00		
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53:							
Calderwood----------	65	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
McConnel----------	20	Very limited		Very limited		Not limited	
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.16	Slope	0.16		
54:							
Carryback----------	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
55:							
Carryback----------	85	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.84	Slope	0.84		
		Restricted permeability	0.41	Restricted permeability	0.41		
56:							
Carryback----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.82	Content of large stones	0.82	Content of large stones	0.82
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
57:							
Carryback----------	85	Very limited		Very limited		Not limited	
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.63	Slope	0.63		
		Restricted permeability	0.41	Restricted permeability	0.41		
58:							
Carryback, thin surface----------	50	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
Carryback, thick surface----------	35	Very limited		Very limited		Not limited	
		Gravel content	1.00	Gravel content	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
59:							
Carryback, thin surface----------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
Carryback, south slopes----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.08	Gravel content	0.08		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59:							
Carryback, north slopes	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.08	Gravel content	0.08		
60:							
Carryback, south slopes	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
Carryback, north slopes	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
61:							
Carryback	55	Very limited		Very limited		Very limited	
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.04	Slope	0.04		
Pearlwise	30	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.04	Slope	0.04		
62:							
Carryback	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
Pearlwise	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
63:							
Carryback	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.98
		Content of large stones	0.82	Content of large stones	0.82	Content of large stones	0.82
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Restricted permeability	0.41	Restricted permeability	0.41		
Dickle	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.98
		Slope	1.00	Slope	1.00	Content of large stones	0.20
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.20	Content of large stones	0.20		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
64:							
Carvix	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
65:							
Clamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.61
		Content of large stones	0.61	Content of large stones	0.61	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.21	Restricted permeability	0.21		
Baconcamp	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Hackwood	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.11	Gravel content	0.11		
66:							
Coztur	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Slope	0.04	Slope	0.04		
67:							
Crowcamp	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
68:							
Crowcamp	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
Ausmus	20	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
Poujade	15	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
69:							
Davey	85	Not limited		Not limited		Not limited	
70:							
Davey	45	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.32	Gravel content	0.32		
Oreanna	40	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.32	Gravel content	0.32		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
71:							
Defenbaugh	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
		Salinity	0.13	Salinity	0.13		
72:							
Deppy	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Gravel content	0.89	Gravel content	0.89		
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Slope	0.16	Slope	0.16		
73:							
Deppy	45	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Slope	0.16	Slope	0.16		
Tumtum	40	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Restricted permeability	0.96	Restricted permeability	0.96	Content of large stones	0.01
		Dusty	0.50	Dusty	0.50		
		Slope	0.16	Slope	0.16		
		Content of large stones	0.01	Content of large stones	0.01		
74:							
Dickle	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.20
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.20	Content of large stones	0.20		
75:							
Dixon	85	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.18	Gravel content	0.18		
76:							
Dixon	85	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.18	Gravel content	0.18		
77:							
Dixon	85	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.68	Gravel content	0.68		
		Salinity	0.13	Salinity	0.13		
		Slope	0.04	Slope	0.04		
78:							
Dixon	50	Somewhat limited		Somewhat limited		Not limited	
		Gravel content	0.68	Gravel content	0.68		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78:							
Droval	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00	Dusty	0.50
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
79:							
Dogmountain	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	0.99	Depth to cemented pan	0.99	Dusty	0.50
		Slope	0.63	Slope	0.63		
		Dusty	0.50	Dusty	0.50		
		Gravel content	0.18	Gravel content	0.18		
80:							
Doyn	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Slope	0.37	Slope	0.37		
81:							
Doyn	60	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Slope	0.37	Slope	0.37		
Merlin	25	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
82:							
Doyn	60	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Slope	1.00	Slope	1.00	Content of large stones	0.42
		Too stony	0.53	Too stony	0.53		
		Content of large stones	0.42	Content of large stones	0.42	Slope	0.02
Arcia	25	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Slope	1.00	Slope	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Slope	0.02
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.04	Gravel content	0.04		
83:							
Drewsey	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
84:							
Drewsey	85	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Water erosion	1.00
		Slope	0.37	Slope	0.37	Dusty	0.50
85:							
Drewsey	35	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.37	Slope	0.37		
Torriorthents	30	Not rated		Not rated		Not rated	
Gumble	25	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.05
		Slope	0.37	Slope	0.37		
		Content of large stones	0.05	Content of large stones	0.05		
		Gravel content	0.04	Gravel content	0.04		
86:							
Droval	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00	Dusty	0.50
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
87:							
Duff	85	Not limited		Not limited		Not limited	
88:							
Duff	45	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.84	Slope	0.84		
Clamp	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.03
		Slope	0.84	Slope	0.84		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.03	Content of large stones	0.03		
89:							
Duff	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
Clamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.03
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.03	Content of large stones	0.03		
90:							
Duff	60	Not limited		Not limited		Not limited	
Hackwood	25	Very limited		Very limited		Somewhat limited	
		Gravel content	1.00	Gravel content	1.00	Slope	0.02
		Slope	1.00	Slope	1.00		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91:							
Edemaps	85	Somewhat limited		Somewhat limited		Not limited	
		Depth to cemented pan	0.84	Depth to cemented pan	0.84		
		Slope	0.84	Slope	0.84		
		Restricted permeability	0.41	Restricted permeability	0.41		
92:							
Edemaps	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to cemented pan	0.84	Depth to cemented pan	0.84	Content of large stones	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.01	Content of large stones	0.01		
Carryback	40	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
93:							
Enko	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79		
94:							
Enko	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79		
Catlow	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
		Gravel content	0.18	Gravel content	0.18		
95:							
Enko	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79		
		Slope	0.37	Slope	0.37		
Catlow	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Slope	0.37	Slope	0.37		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Gravel content	0.18	Gravel content	0.18		
96:							
Enko	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79		
Catlow	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.02
		Restricted permeability	0.21	Restricted permeability	0.21		
		Gravel content	0.03	Gravel content	0.03		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
97:							
Erakatak	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.84	Content of large stones	0.84	Content of large stones	0.84
98:							
Erakatak	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.33	Gravel content	0.33	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
Lambring	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
Rock outcrop	10	Not rated		Not rated		Not rated	
99:							
Erakatak	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.33	Gravel content	0.33	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
Merlin	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Slope	1.00	Slope	1.00		
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Slope	0.50
		Restricted permeability	0.45	Restricted permeability	0.45		
Westbutte	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
100:							
Erakatak	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Rock outcrop	20	Not rated		Not rated		Not rated	
101:							
Erakatak	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Ninemile	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.18
		Slope	1.00	Slope	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Hapgood	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.20	Content of large stones	0.20	Content of large stones	0.20
102:							
Felcher	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Slope	1.00
103:							
Felcher	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.71	Content of large stones	0.71	Content of large stones	0.71
		Too stony	0.53	Too stony	0.53	Too stony	0.53
Rock outcrop	20	Not rated		Not rated		Not rated	
104:							
Felcher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	
Brezniak	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.02
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.02	Content of large stones	0.02		
105:							
Felcher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Rock outcrop	30	Not rated		Not rated		Not rated	
Westbutte	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94
106:							
Felcher	45	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Content of large stones	0.71
		Content of large stones	0.71	Content of large stones	0.71	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Slope	0.18

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
106:							
Sagehen	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.18
		Slope	1.00	Slope	1.00	Content of large stones	0.01
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.01	Content of large stones	0.01		
107:							
Felcher	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.71	Content of large stones	0.71	Content of large stones	0.71
		Too stony	0.53	Too stony	0.53	Too stony	0.53
Sagehen	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.32
		Content of large stones	0.32	Content of large stones	0.32		
		Restricted permeability	0.21	Restricted permeability	0.21		
108:							
Felcher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Fitzwater	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.68	Content of large stones	0.68	Content of large stones	0.68
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
109:							
Felcher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.71	Content of large stones	0.71	Content of large stones	0.71
		Too stony	0.53	Too stony	0.53	Too stony	0.53
Pernty	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
Ninemile	20	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Slope	1.00	Slope	1.00		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
110:							
Felcher	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.71	Content of large stones	0.71	Content of large stones	0.71
		Too stony	0.53	Too stony	0.53	Too stony	0.53

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
110:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94
111:							
Final	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Restricted permeability	0.96	Restricted permeability	0.96	Depth to saturated zone	0.11
		Depth to saturated zone	0.81	Dusty	0.50		
		Dusty	0.50	Depth to saturated zone	0.48		
112:							
Fitzwater	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.77	Content of large stones	0.77	Content of large stones	0.77
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Hapgood, thick surface	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.36	Gravel content	0.36		
Hapgood, thin surface	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
113:							
Fitzwater	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.68	Content of large stones	0.68	Content of large stones	0.68
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Rock outcrop	25	Not rated		Not rated		Not rated	
114:							
Flank	50	Very limited		Very limited		Very limited	
		Gravel content	1.00	Gravel content	1.00	Gravel content	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79		
Lava flows	35	Not rated		Not rated		Not rated	
115:							
Fourwheel	85	Very limited		Very limited		Somewhat limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
116:							
Fourwheel	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Content of large stones	0.54
		Content of large stones	0.54	Content of large stones	0.54	Dusty	0.50
		Dusty	0.50	Dusty	0.50		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
117:							
Freznik	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.45	Restricted permeability	0.45	Content of large stones	0.18
		Content of large stones	0.18	Content of large stones	0.18		
		Slope	0.04	Slope	0.04		
118:							
Fury	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
119:							
Fury	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
120:							
Fury	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
Degarmo	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Depth to saturated zone	0.11
		Depth to saturated zone	0.81	Depth to saturated zone	0.48		
121:							
Fury	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
Housefield	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
122:							
Fury	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
Housefield	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
122:							
Skidoosprings	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Salinity	0.50	Salinity	0.50		
123:							
Fury	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
Opie	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Salinity	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
124:							
Fury	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
Skidoosprings	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Salinity	0.50	Salinity	0.50		
Opie	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Salinity	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
125:							
Fury	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
Widowspring	40	Not limited		Not limited		Not limited	
126:							
Gaib	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Slope	0.37	Slope	0.37		
		Gravel content	0.01	Gravel content	0.01		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
127:							
Gaib	55	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Slope	0.04	Slope	0.04		
		Gravel content	0.01	Gravel content	0.01		
Ateron	30	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.89	Gravel content	0.89		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.04	Slope	0.04		
128:							
Gaib	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.01	Gravel content	0.01		
Rock outcrop	20	Not rated		Not rated		Not rated	
129:							
Gilispie	65	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Slope	0.04	Slope	0.04		
Noname	20	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.08
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.08	Content of large stones	0.08		
		Slope	0.04	Slope	0.04		
130:							
Gochea	85	Not limited		Not limited		Not limited	
131:							
Goldrun	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.52	Too sandy	0.52	Too sandy	0.52
Alvodest	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00		
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
132:							
Gradon	85	Somewhat limited		Somewhat limited		Not limited	
		Depth to cemented pan	0.29	Depth to cemented pan	0.29		
		Gravel content	0.14	Gravel content	0.14		
133:							
Guano	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.25	Gravel content	0.25		
		Slope	0.04	Slope	0.04		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
134:							
Gumble	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Gravel content	0.95	Gravel content	0.95		
		Dusty	0.50	Dusty	0.50		
		Slope	0.37	Slope	0.37		
135:							
Gumble	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.26
		Content of large stones	0.26	Content of large stones	0.26		
136:							
Gumble	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Gravel content	0.95	Gravel content	0.95		
		Dusty	0.50	Dusty	0.50		
		Slope	0.37	Slope	0.37		
Mahoon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
Cagle	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.79	Gravel content	0.79	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
137:							
Hackwood	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.11	Gravel content	0.11		
138:							
Hackwood	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.11	Gravel content	0.11		
Baconcamp	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.08	Content of large stones	0.08	Content of large stones	0.08
139:							
Hapgood	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.20	Content of large stones	0.20	Content of large stones	0.20
140:							
Hart Camp	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Slope	0.16	Slope	0.16		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
141:							
Hart Camp	85	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.92
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
142:							
Helphenstein	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Salinity	0.50	Salinity	0.50		
Goldrun	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.53	Too sandy	0.53	Too sandy	0.53
		Slope	0.04	Slope	0.04		
143:							
Homefield	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Salinity	0.50	Salinity	0.50		
144:							
Housefield	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
145:							
Housefield	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Doubleo	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Ponding	1.00
		Restricted permeability	1.00	Ponding	1.00	Depth to saturated zone	0.86
		Ponding	1.00	Depth to saturated zone	0.94		
146:							
Icene	60	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Dusty	0.50
		Restricted permeability	0.96	Restricted permeability	0.96		
		Salinity	0.50	Salinity	0.50		
		Dusty	0.50	Dusty	0.50		
Playas	25	Not rated		Not rated		Not rated	
147:							
Icene	60	Very limited		Very limited		Not limited	
		Sodium content	1.00	Sodium content	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Salinity	0.50	Salinity	0.50		
Playas	25	Not rated		Not rated		Not rated	

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
148:							
Jesse Camp----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
149:							
Jimgreen----------	90	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
150:							
Jimgreen----------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
Housefield----------	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
151:							
Kegler----------	85	Somewhat limited		Somewhat limited		Not limited	
		Depth to cemented pan	0.03	Depth to cemented pan	0.03		
152:							
Kerrfield----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.63	Slope	0.63	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
153:							
Klicker----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.72	Gravel content	0.72	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
154:							
Klicker----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.84	Content of large stones	0.84	Content of large stones	0.84
155:							
Krackle, north slopes----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
		Gravel content	0.02	Gravel content	0.02		
Krackle, south slopes----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
		Gravel content	0.02	Gravel content	0.02		
156:							
Krackle----------	40	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.50
		Gravel content	0.82	Gravel content	0.82		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156:							
Baconcamp	30	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.08
		Gravel content	0.82	Gravel content	0.82		
Rock outcrop	15	Not rated		Not rated		Not rated	
157:							
Krackle	40	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.08
		Gravel content	0.82	Gravel content	0.82		
		Restricted permeability	0.21	Restricted permeability	0.21		
Baconcamp	30	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.08
		Gravel content	0.82	Gravel content	0.82		
Rock outcrop	15	Not rated		Not rated		Not rated	
158:							
Krackle	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
Rock outcrop	15	Not rated		Not rated		Not rated	
159:							
Krackle	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.21	Restricted permeability	0.21	Content of large stones	0.01
		Content of large stones	0.01	Content of large stones	0.01		
Baconcamp	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
Hackwood	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.11	Gravel content	0.11		
160:							
Ladycomb	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.08
		Slope	1.00	Slope	1.00		
161:							
Lambranch	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.08	Gravel content	0.08		
162:							
Lambring	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
162:							
Egyptcreek----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Rock outcrop--------	15	Not rated		Not rated		Not rated	
163:							
Lambring, thick surface----------	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
Lambring, thin surface----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	1.00	Gravel content	1.00		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
164:							
Lambring----------	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94
Rubble land---------	35	Not rated		Not rated		Not rated	
165:							
Langslet----------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
166:							
Lava flows----------	85	Not rated		Not rated		Not rated	
167:							
Lava flows----------	55	Not rated		Not rated		Not rated	
Flank---------------	30	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
168:							
Lawen---------------	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too sandy	0.01	Too sandy	0.01	Too sandy	0.01
169:							
Leathers----------	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
170:							
Leathers----------	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171:							
Leemorris	50	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.25	Gravel content	0.25		
		Slope	0.04	Slope	0.04		
Buckwilder	35	Very limited		Very limited		Somewhat limited	
		Restricted permeability	1.00	Restricted permeability	1.00	Content of large stones	0.01
		Gravel content	0.07	Gravel content	0.07		
		Slope	0.04	Slope	0.04		
		Content of large stones	0.01	Content of large stones	0.01		
172:							
Leemorris	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.25	Gravel content	0.25		
Buckwilder	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	1.00	Restricted permeability	1.00	Content of large stones	0.01
		Gravel content	0.07	Gravel content	0.07		
		Content of large stones	0.01	Content of large stones	0.01		
173:							
Legler	85	Very limited		Not limited		Not limited	
		Flooding	1.00				
174:							
Locane	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Slope	1.00	Slope	1.00	Content of large stones	0.05
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.43	Restricted permeability	0.43		
		Gravel content	0.08	Gravel content	0.08		
175:							
Lolak	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Restricted permeability	1.00	Restricted permeability	1.00		
		Ponding	1.00	Ponding	1.00		
176:							
Lolak	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Restricted permeability	1.00	Restricted permeability	1.00		
		Ponding	1.00	Ponding	1.00		
Ausmus	35	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
177:							
Lonely	50	Not limited		Not limited		Not limited	
Doyn	35	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Slope	0.96	Slope	0.96		
178:							
Lonely	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.32
		Content of large stones	0.01	Content of large stones	0.01	Content of large stones	0.01
Robson	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.05
		Restricted permeability	0.96	Restricted permeability	0.96		
		Slope	0.16	Slope	0.16		
		Gravel content	0.08	Gravel content	0.08		
		Content of large stones	0.05	Content of large stones	0.05		
179:							
Longcreek	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.26
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.26	Content of large stones	0.26		
Cleavage	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Gravel content	1.00
		Gravel content	1.00	Gravel content	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
180:							
Longcreek	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.26
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.26	Content of large stones	0.26		
Rock outcrop	10	Not rated		Not rated		Not rated	
181:							
Loupence	85	Very limited		Not limited		Not limited	
		Flooding	1.00				
182:							
Madeline	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.50
		Content of large stones	0.50	Content of large stones	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
183:							
Madeline	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.50
		Content of large stones	0.50	Content of large stones	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
184:							
Madeline	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.11	Gravel content	0.11		
Ninemile	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
185:							
Madeline	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.50
		Content of large stones	0.50	Content of large stones	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
Rock outcrop	20	Not rated		Not rated		Not rated	
186:							
Mahoon	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.18
		Slope	0.37	Slope	0.37		
		Content of large stones	0.18	Content of large stones	0.18		
		Gravel content	0.01	Gravel content	0.01		
187:							
Mahoon	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.18
		Slope	0.37	Slope	0.37		
		Content of large stones	0.18	Content of large stones	0.18		
		Gravel content	0.01	Gravel content	0.01		
Brezniak	25	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.02
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.02	Content of large stones	0.02		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187:							
Longcreek	20	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Gravel content	0.01	Gravel content	0.01		
188:							
Mahoon	65	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.18
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.18	Content of large stones	0.18		
		Gravel content	0.01	Gravel content	0.01		
Cagle	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.18
		Content of large stones	0.18	Content of large stones	0.18		
		Gravel content	0.04	Gravel content	0.04		
189:							
Mahoon	50	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Water erosion	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Dusty	0.50
		Slope	0.37	Slope	0.37		
Risley	35	Very limited		Very limited		Somewhat limited	
		Gravel content	1.00	Gravel content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
190:							
Mahoon	50	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.92
		Gravel content	1.00	Gravel content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.41	Restricted permeability	0.41		
Cotant	35	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Slope	0.92
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.01	Content of large stones	0.01		
191:							
Mcbain	45	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Salinity	1.00	Salinity	1.00		
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
191:							
Ausmus	40	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
192:							
McConnel	85	Not limited		Not limited		Not limited	
193:							
Merlin	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.04	Slope	0.04		
194:							
Merlin, very stony	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
Merlin, very cobbly	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
195:							
Merlin	60	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
Ateron	25	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Gravel content	0.03	Gravel content	0.03		
196:							
Merlin	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
196:							
Ateron	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.32
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.32	Content of large stones	0.32		
Rubble land	15	Not rated		Not rated		Not rated	
197:							
Merlin	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
Ateron	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
Ticino	25	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
		Gravel content	0.01	Gravel content	0.01		
198:							
Merlin	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
Erakatak	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Content of large stones	0.01
		Gravel content	0.33	Gravel content	0.33		
		Content of large stones	0.01	Content of large stones	0.01		
Teguro	20	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.37	Slope	0.37		
199:							
Merlin	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199:							
Observation---	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
200:							
Merlin---	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
Observation---	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Restricted permeability	0.41	Restricted permeability	0.41		
201:							
Merlin---	70	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.04	Slope	0.04		
Rubble land---	15	Not rated		Not rated		Not rated	
202:							
Merlin---	55	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.89	Gravel content	0.89		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.04	Slope	0.04		
Teguro---	30	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.04	Slope	0.04		
203:							
Merlin---	45	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203:							
Teguro	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.14
		Slope	0.37	Slope	0.37		
		Content of large stones	0.14	Content of large stones	0.14		
		Gravel content	0.01	Gravel content	0.01		
204:							
Mesman	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Too sandy	0.49
		Too sandy	0.49	Too sandy	0.49		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Salinity	0.13	Salinity	0.13		
205:							
Mesman	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Too sandy	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Salinity	0.13	Salinity	0.13		
		Too sandy	0.01	Too sandy	0.01		
206:							
Mesman	45	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Too sandy	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Salinity	0.13	Salinity	0.13		
		Too sandy	0.01	Too sandy	0.01		
Norad	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
207:							
Middlebox	85	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.84	Slope	0.84		
		Gravel content	0.25	Gravel content	0.25		
208:							
Middlebox, north slopes	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.25	Gravel content	0.25		
Middlebox, south slopes	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.25	Gravel content	0.25		
209:							
Minam	85	Not limited		Not limited		Not limited	
210:							
Minam	60	Not limited		Not limited		Not limited	
Welch	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	0.40
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
211:							
Modoc	85	Somewhat limited		Somewhat limited		Not limited	
		Depth to cemented pan	0.84	Depth to cemented pan	0.84		
		Gravel content	0.08	Gravel content	0.08		
		Slope	0.04	Slope	0.04		
212:							
Morfitt	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
213:							
Morganhills	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
214:							
Morganhills, more than 12 percent slopes	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.98
		Slope	1.00	Slope	1.00		
Morganhills, less than 12 percent slopes	40	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
215:							
Mound	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.05
		Slope	0.37	Slope	0.37		
		Content of large stones	0.05	Content of large stones	0.05		
216:							
Nevador	85	Very limited		Very limited		Not limited	
		Gravel content	1.00	Gravel content	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
217:							
Ninemile	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Gravel content	0.01	Gravel content	0.01		
218:							
Ninemile	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Slope	1.00	Slope	1.00	Slope	0.02
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
219:							
Ninemile	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.20
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.20	Content of large stones	0.20		
		Slope	0.16	Slope	0.16		
220:							
Ninemile	55	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Gravel content	0.01	Gravel content	0.01		
Carvix	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
221:							
Ninemile	60	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Doyn	25	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Slope	0.37	Slope	0.37		
222:							
Ninemile	50	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Gravel content	0.01	Gravel content	0.01		
Edemaps	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to cemented pan	0.84	Depth to cemented pan	0.84	Content of large stones	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.01	Content of large stones	0.01		
223:							
Ninemile	45	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Slope	0.04	Slope	0.04		
		Gravel content	0.02	Gravel content	0.02		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
223:							
Madeline	40	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Gravel content	0.11	Gravel content	0.11		
		Slope	0.04	Slope	0.04		
224:							
Ninemile	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Pearlwise	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
225:							
Ninemile	55	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Reluctan	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
226:							
Ninemile	50	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Slope	1.00	Slope	1.00	Slope	0.02
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Reluctan	20	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Slope	0.02
Rubble land	15	Not rated		Not rated		Not rated	
227:							
Ninemile	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
228:							
Ninemile	65	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Slope	0.84	Slope	0.84		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Rubble land	20	Not rated		Not rated		Not rated	
229:							
Ninemile	60	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Slope	0.04	Slope	0.04		
		Gravel content	0.02	Gravel content	0.02		
Westbutte	30	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94
		Slope	0.04	Slope	0.04		
230:							
Ninemile, very cobbly	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Slope	1.00	Slope	1.00		
		Restricted permeability	0.45	Restricted permeability	0.45	Slope	0.02
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Westbutte	30	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Slope	1.00	Slope	1.00	Content of large stones	0.94
		Content of large stones	0.94	Content of large stones	0.94	Slope	0.02
Ninemile, extremely stony	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Content of large stones	0.88
		Slope	1.00	Slope	1.00	Slope	0.02
		Content of large stones	0.88	Content of large stones	0.88		
		Restricted permeability	0.45	Restricted permeability	0.45		
231:							
Ninemile, very cobbly	70	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
231:							
Ninemile, extremely stony	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Content of large stones	0.88
		Content of large stones	0.88	Content of large stones	0.88		
		Restricted permeability	0.45	Restricted permeability	0.45		
232:							
Ninemile	70	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.10
		Slope	0.84	Slope	0.84		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
Felcher	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.10	Content of large stones	0.10	Content of large stones	0.10
233:							
Noname	45	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
Dickle	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.20
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.20	Content of large stones	0.20		
234:							
Noname	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.08
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.08	Content of large stones	0.08		
Duff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.08	Content of large stones	0.08	Content of large stones	0.08
Rock outcrop	20	Not rated		Not rated		Not rated	
235:							
Norad	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
236:							
Norad	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
236:							
Spangenburg---------	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
237:							
Nuss----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.02
		Content of large stones	0.02	Content of large stones	0.02		
238:							
Nuss----------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.02
		Content of large stones	0.02	Content of large stones	0.02		
Merlin----------	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
239:							
Nuss----------	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.02
		Content of large stones	0.02	Content of large stones	0.02		
Rock outcrop--------	30	Not rated		Not rated		Not rated	
240:							
Observation---------	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
241:							
Observation---------	65	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.84	Slope	0.84		
		Restricted permeability	0.41	Restricted permeability	0.41		
Rock outcrop--------	20	Not rated		Not rated		Not rated	
242:							
Observation---------	45	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
Royst----------	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
242:							
Merlin	15	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.77
		Content of large stones	0.77	Content of large stones	0.77	Too stony	0.53
		Too stony	0.53	Too stony	0.53		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
243:							
Observation	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Gravel content	0.52	Gravel content	0.52	Content of large stones	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.01	Content of large stones	0.01		
Teguro	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Slope	0.37	Slope	0.37		
244:							
Observation	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Restricted permeability	0.41	Restricted permeability	0.41		
Lambring	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
245:							
Olac	55	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.05
		Content of large stones	0.05	Content of large stones	0.05		
		Gravel content	0.04	Gravel content	0.04		
Atlow	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.10	Content of large stones	0.10		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
246:							
Opie	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Salinity	1.00	Salinity	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
247:							
Oreneva	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Gravel content	0.25	Gravel content	0.25		
248:							
Outerkirk	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.21	Restricted permeability	0.21		
249:							
Outerkirk	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.21	Restricted permeability	0.21		
250:							
Outerkirk	55	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.21	Restricted permeability	0.21		
Defenbaugh	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
		Salinity	0.13	Salinity	0.13		
251:							
Ozamis	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
252:							
Pearlwise	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
253:							
Pernty	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.41	Gravel content	0.41		
		Slope	0.04	Slope	0.04		
254:							
Pernty	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.41	Gravel content	0.41		
255:							
Pernty	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
256:							
Pernty	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.41	Gravel content	0.41		
Rock outcrop	25	Not rated		Not rated		Not rated	
257:							
Pernty	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00		
		Gravel content	0.41	Gravel content	0.41		
Westbutte	25	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94
Ninemile	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Content of large stones	0.10
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.10	Content of large stones	0.10		
		Gravel content	0.02	Gravel content	0.02		
258:							
Pits	100	Not rated		Not rated		Not rated	
259:							
Playas	95	Not rated		Not rated		Not rated	
260:							
Playas	60	Not rated		Not rated		Not rated	
Thenarrows	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
261:							
Poall	85	Somewhat limited		Somewhat limited		Very limited	
		Dusty	0.50	Dusty	0.50	Water erosion	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Dusty	0.50
		Slope	0.37	Slope	0.37		
262:							
Poall	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
Gumble	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Slope	1.00	Slope	1.00		
		Gravel content	0.95	Gravel content	0.95		
		Dusty	0.50	Dusty	0.50		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
263:							
Pomerening	85	Very limited		Very limited		Somewhat limited	
		Gravel content	1.00	Gravel content	1.00	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79		
		Slope	0.37	Slope	0.37		
264:							
Pomerening	40	Very limited		Very limited		Not limited	
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.37	Slope	0.37		
Flank	25	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.37	Slope	0.37		
Lava flows	20	Not rated		Not rated		Not rated	
265:							
Porterfield	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Slope	0.37	Slope	0.37		
266:							
Porterfield	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Content of large stones	0.10	Content of large stones	0.10		
267:							
Porterfield	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Content of large stones	0.10	Content of large stones	0.10		
Tincan	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Gravel content	0.36	Gravel content	0.36		
Rock outcrop	15	Not rated		Not rated		Not rated	
268:							
Poujade	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
269:							
Poujade	85	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
270:							
Poujade	50	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
Ausmus	35	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
271:							
Raz	85	Very limited		Very limited		Not limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00		
272:							
Raz	50	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.26
		Slope	0.37	Slope	0.37		
		Content of large stones	0.26	Content of large stones	0.26		
Brace	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Slope	0.37	Slope	0.37	Content of large stones	0.10
		Depth to cemented pan	0.29	Depth to cemented pan	0.29		
		Content of large stones	0.10	Content of large stones	0.10		
273:							
Raz	50	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.26
		Slope	0.37	Slope	0.37		
		Content of large stones	0.26	Content of large stones	0.26		
Brace	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Slope	0.37	Slope	0.37	Content of large stones	0.10
		Depth to cemented pan	0.29	Depth to cemented pan	0.29		
		Content of large stones	0.10	Content of large stones	0.10		
274:							
Reallis	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.60	Restricted permeability	0.60		
275:							
Reallis	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.60	Restricted permeability	0.60		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
276:							
Reese	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00		
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
277:							
Reluctan	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Slope	0.37	Slope	0.37		
278:							
Reluctan	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Slope	0.37	Slope	0.37		
279:							
Riddleranch	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.77	Content of large stones	0.77	Content of large stones	0.77
		Too stony	0.53	Too stony	0.53	Too stony	0.53
Lambring	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
280:							
Riddleranch	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.77	Content of large stones	0.77	Content of large stones	0.77
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Dusty	0.50	Dusty	0.50	Dusty	0.50
Rock outcrop	35	Not rated		Not rated		Not rated	
281:							
Rinconflat	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Content of large stones	0.05	Content of large stones	0.05	Content of large stones	0.05
282:							
Rio King	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
283:							
Rio King	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
283:							
Droval	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Salinity	1.00	Salinity	1.00	Dusty	0.50
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
284:							
Risley	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Gravel content	0.25	Gravel content	0.25		
Gumble	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Gravel content	0.95	Gravel content	0.95		
		Dusty	0.50	Dusty	0.50		
		Slope	0.37	Slope	0.37		
285:							
Risley	40	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.96	Slope	0.96		
		Restricted permeability	0.41	Restricted permeability	0.41		
Gumble	25	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Slope	0.96	Slope	0.96	Content of large stones	0.05
		Dusty	0.50	Dusty	0.50		
		Content of large stones	0.05	Content of large stones	0.05		
		Gravel content	0.04	Gravel content	0.04		
Torriorthents	20	Not rated		Not rated		Not rated	
286:							
Risley	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.20
		Restricted permeability	0.41	Restricted permeability	0.41		
		Content of large stones	0.20	Content of large stones	0.20		
Rock outcrop	25	Not rated		Not rated		Not rated	
287:							
Robson	45	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Slope	0.04	Slope	0.04		
Anawalt	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Restricted permeability	0.96	Restricted permeability	0.96		
		Dusty	0.50	Dusty	0.50		
		Gravel content	0.08	Gravel content	0.08		
		Slope	0.04	Slope	0.04		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
288:							
Robson	45	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.50
		Slope	1.00	Slope	1.00	Content of large stones	0.05
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.08	Gravel content	0.08		
		Content of large stones	0.05	Content of large stones	0.05		
Fourwheel	40	Very limited		Very limited		Not limited	
		Restricted permeability	1.00	Restricted permeability	1.00		
289:							
Robson	55	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.05
		Slope	0.96	Slope	0.96		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Gravel content	0.08	Gravel content	0.08		
		Content of large stones	0.05	Content of large stones	0.05		
Felcher	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
290:							
Roca	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Restricted permeability	0.41	Restricted permeability	0.41	Content of large stones	0.08
		Content of large stones	0.08	Content of large stones	0.08		
291:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Rubble land	30	Not rated		Not rated		Not rated	
292:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Baconcamp	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Gravel content	0.82	Gravel content	0.82		
293:							
Royst	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
Merlin	20	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
294:							
Rubble land	35	Not rated		Not rated		Not rated	
Nuss	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.02
		Content of large stones	0.02	Content of large stones	0.02		
Ateron	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	1.00
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00		
		Restricted permeability	0.41	Restricted permeability	0.41		
295:							
Sagehen	75	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.18
		Slope	1.00	Slope	1.00	Content of large stones	0.01
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.01	Content of large stones	0.01		
Rock outcrop	10	Not rated		Not rated		Not rated	
296:							
Sagehen	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.01
		Restricted permeability	0.21	Restricted permeability	0.21		
		Content of large stones	0.01	Content of large stones	0.01		
Rock outcrop	10	Not rated		Not rated		Not rated	
297:							
Sandgap	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
298:							
Sandgap	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
299:							
Seharney	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
300:							
Skedaddle	45	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.18
		Slope	1.00	Slope	1.00	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
300:							
Atlow	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Slope	1.00	Slope	1.00	Dusty	0.50
		Too stony	0.53	Too stony	0.53	Slope	0.18
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
Rock outcrop	15	Not rated		Not rated		Not rated	
301:							
Skedaddle	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
Atlow	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Dusty	0.50
		Dusty	0.50	Dusty	0.50	Content of large stones	0.10
		Restricted permeability	0.21	Restricted permeability	0.21		
Rock outcrop	15	Not rated		Not rated		Not rated	
302:							
Skedaddle	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
Rock outcrop	15	Not rated		Not rated		Not rated	
303:							
Skedaddle, south slopes	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
Skedaddle, north slopes	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
304:							
Skidoosprings	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Salinity	0.50	Salinity	0.50		
305:							
Skidoosprings	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00		
		Salinity	0.50	Salinity	0.50		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
306:							
Skunkfarm	65	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.78	Depth to saturated zone	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
Cumulic Haploxerolls	20	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
307:							
Skunkfarm	45	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.78	Depth to saturated zone	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
Doubleo	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Ponding	1.00
		Restricted permeability	1.00	Ponding	1.00	Depth to saturated zone	0.86
		Ponding	1.00	Depth to saturated zone	0.94		
308:							
Skunkfarm	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.78	Depth to saturated zone	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
Mcbain	30	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Dusty	0.50
		Salinity	1.00	Salinity	1.00		
		Dusty	0.50	Dusty	0.50		
		Restricted permeability	0.21	Restricted permeability	0.21		
Doubleo	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Restricted permeability	1.00	Ponding	1.00
		Restricted permeability	1.00	Ponding	1.00	Depth to saturated zone	0.86
		Ponding	1.00	Depth to saturated zone	0.94		
309:							
Skunkfarm	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.99	Depth to saturated zone	0.78	Depth to saturated zone	0.50
		Restricted permeability	0.21	Restricted permeability	0.21		
Skidoosprings	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Salinity	0.50	Salinity	0.50		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
310:							
Spangenburg	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
311:							
Spangenburg	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
312:							
Spangenburg	85	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
313:							
Srednic	60	Very limited		Very limited		Not limited	
		Gravel content	1.00	Gravel content	1.00		
		Depth to cemented pan	0.84	Depth to cemented pan	0.84		
		Slope	0.37	Slope	0.37		
Aval	30	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.37	Slope	0.37		
314:							
Stampede	85	Somewhat limited		Somewhat limited		Not limited	
		Depth to cemented pan	0.95	Depth to cemented pan	0.95		
		Restricted permeability	0.45	Restricted permeability	0.45		
315:							
Swaler	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.45	Restricted permeability	0.45		
316:							
Swaler	70	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.45	Restricted permeability	0.45		
Swalesilver	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.45	Restricted permeability	0.45		
317:							
Swalesilver	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.45	Restricted permeability	0.45		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
318:							
Swalesilver---	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.45	Restricted permeability	0.45		
319:							
Swalesilver---	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.45	Restricted permeability	0.45		
320:							
Teguro---	85	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Slope	0.84	Slope	0.84		
		Gravel content	0.25	Gravel content	0.25		
321:							
Teguro---	90	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Slope	0.37	Slope	0.37		
322:							
Teguro---	85	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.14
		Slope	0.37	Slope	0.37		
		Content of large stones	0.14	Content of large stones	0.14		
		Gravel content	0.01	Gravel content	0.01		
323:							
Teguro---	45	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	1.00	Gravel content	1.00		
		Slope	0.37	Slope	0.37		
Anatone, moist---	40	Very limited		Very limited		Not limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.86	Gravel content	0.86		
		Slope	0.37	Slope	0.37		
324:							
Teguro---	55	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Slope	0.37	Slope	0.37		
Ateron---	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
325:							
Thenarrows	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
Duckclub	40	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Too sandy	0.27
		Too sandy	0.27	Too sandy	0.27		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Salinity	0.13	Salinity	0.13		
326:							
Thenarrows	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
Duckclub	20	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Too sandy	0.27
		Too sandy	0.27	Too sandy	0.27		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Salinity	0.13	Salinity	0.13		
Dentdraw	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.21	Restricted permeability	0.21		
327:							
Thenarrows	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
Duckclub	35	Very limited		Very limited		Somewhat limited	
		Sodium content	1.00	Sodium content	1.00	Too sandy	0.27
		Too sandy	0.27	Too sandy	0.27		
		Restricted permeability	0.21	Restricted permeability	0.21		
		Salinity	0.13	Salinity	0.13		
Sandgap	15	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
328:							
Ticino	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.03	Content of large stones	0.03	Content of large stones	0.03
Merlin	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.05
		Restricted permeability	0.45	Restricted permeability	0.45		
		Content of large stones	0.05	Content of large stones	0.05		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
329:							
Ticino	60	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.37	Slope	0.37		
		Gravel content	0.20	Gravel content	0.20		
Observation	25	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
330:							
Ticino	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Content of large stones	0.03
		Content of large stones	0.03	Content of large stones	0.03		
Rock outcrop	20	Not rated		Not rated		Not rated	
331:							
Toll	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Slope	0.04	Slope	0.04		
332:							
Toll	45	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Slope	0.04	Slope	0.04		
Nevador	40	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.21	Restricted permeability	0.21		
333:							
Torriorthents	50	Not rated		Not rated		Not rated	
Gumble	40	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Dusty	0.50
		Slope	1.00	Slope	1.00	Slope	0.32
		Gravel content	0.95	Gravel content	0.95		
		Dusty	0.50	Dusty	0.50		
334:							
Tumtum	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Restricted permeability	0.96	Restricted permeability	0.96	Content of large stones	0.01
		Dusty	0.50	Dusty	0.50		
		Slope	0.16	Slope	0.16		
		Content of large stones	0.01	Content of large stones	0.01		
335:							
Tumtum	85	Very limited		Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Dusty	0.50
		Restricted permeability	0.96	Restricted permeability	0.96	Content of large stones	0.01
		Dusty	0.50	Dusty	0.50		
		Content of large stones	0.01	Content of large stones	0.01		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
336:							
Turpin	85	Very limited		Very limited		Very limited	
		Sodium content	1.00	Sodium content	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00		
		Restricted permeability	0.96	Restricted permeability	0.96		
		Salinity	0.13	Salinity	0.13		
337:							
Vanwyper	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
Rock outcrop	20	Not rated		Not rated		Not rated	
338:							
Vergas	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Restricted permeability	0.96	Restricted permeability	0.96	Dusty	0.50
		Dusty	0.50	Dusty	0.50		
		Gravel content	0.50	Gravel content	0.50		
339:							
Vil	85	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Water erosion	1.00
		Slope	0.37	Slope	0.37		
340:							
Vining	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Slope	0.37	Slope	0.37		
341:							
Vining	55	Very limited		Very limited		Somewhat limited	
		Slope	1.00	Slope	1.00	Too sandy	0.79
		Too sandy	0.79	Too sandy	0.79	Slope	0.18
Tuffo	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Water erosion	1.00
		Slope	1.00	Slope	1.00	Slope	0.18
342:							
Vitale	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.32
		Content of large stones	0.32	Content of large stones	0.32		
343:							
Vitale	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
Merlin	35	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
344:							
Vitale	35	Somewhat limited		Somewhat limited		Not limited	
		Slope	0.37	Slope	0.37		
		Gravel content	0.25	Gravel content	0.25		
Merlin	30	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.68
		Content of large stones	0.68	Content of large stones	0.68		
		Restricted permeability	0.45	Restricted permeability	0.45		
		Slope	0.37	Slope	0.37		
Doyn	20	Very limited		Very limited		Somewhat limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Content of large stones	0.32
		Slope	0.37	Slope	0.37		
		Content of large stones	0.32	Content of large stones	0.32		
345:							
Vitale	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Content of large stones	0.14
		Content of large stones	0.14	Content of large stones	0.14		
Observation	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Gravel content	0.52	Gravel content	0.52	Content of large stones	0.01
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
		Content of large stones	0.01	Content of large stones	0.01		
346:							
Vitale	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.32	Content of large stones	0.32	Content of large stones	0.32
Rock outcrop	20	Not rated		Not rated		Not rated	
347:							
Voltage	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Salinity	0.13	Salinity	0.13		
348:							
Voltage	60	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Salinity	0.13	Salinity	0.13		
Crowcamp	25	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.41	Restricted permeability	0.41		
349:							
Voltage	45	Somewhat limited		Somewhat limited		Not limited	
		Salinity	0.13	Salinity	0.13		
Crowcamp	40	Somewhat limited		Somewhat limited		Not limited	
		Restricted permeability	0.41	Restricted permeability	0.41		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
350:							
Voltage	65	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Salinity	0.13	Salinity	0.13		
Widowspring	20	Not limited		Not limited		Not limited	
351:							
Wagontire	85	Very limited		Very limited		Not limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00		
		Gravel content	0.41	Gravel content	0.41		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
352:							
Wagontire	55	Very limited		Very limited		Not limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00		
		Gravel content	0.41	Gravel content	0.41		
		Restricted permeability	0.41	Restricted permeability	0.41		
		Slope	0.37	Slope	0.37		
Vil	30	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to cemented pan	1.00	Water erosion	1.00
		Slope	0.37	Slope	0.37		
353:							
Waspo	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Too clayey	0.50	Too clayey	0.50	Too clayey	0.50
		Restricted permeability	0.45	Restricted permeability	0.45		
Poall	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Dusty	0.50	Dusty	0.50	Dusty	0.50
		Restricted permeability	0.41	Restricted permeability	0.41		
354:							
Water	100	Not rated		Not rated		Not rated	
355:							
Welch	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		
356:							
Welch	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Restricted permeability	0.21	Restricted permeability	0.21		

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
357:							
Welch	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	0.40
		Restricted permeability	0.21	Restricted permeability	0.21		
Roschene	25	Very limited		Not limited		Not limited	
		Flooding	1.00				
Cumulic Haploxerolls	20	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40	Flooding	0.40
358:							
Wenas	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Flooding	1.00	Flooding	0.40	Flooding	0.40
		Restricted permeability	0.21	Restricted permeability	0.21		
Loupence	25	Very limited		Not limited		Not limited	
		Flooding	1.00				
Cumulic Haploxerolls	15	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Flooding	0.40	Flooding	0.40
359:							
Westbutte	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
360:							
Westbutte	85	Very limited		Very limited		Very limited	
		Too stony	1.00	Too stony	1.00	Too stony	1.00
		Slope	1.00	Slope	1.00	Content of large stones	0.94
		Content of large stones	0.94	Content of large stones	0.94		
361:							
Westbutte	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Too stony	1.00	Too stony	1.00	Slope	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94
Bocker	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Too stony	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	1.00
		Too stony	1.00	Too stony	1.00	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Gravel content	0.02	Gravel content	0.02		
362:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.94	Content of large stones	0.94	Content of large stones	0.94

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
362:							
Lambring	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.26	Content of large stones	0.26	Content of large stones	0.26
Rock outcrop	20	Not rated		Not rated		Not rated	
363:							
Westbutte	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
364:							
Westbutte	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	20	Not rated		Not rated		Not rated	
365:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.26	Content of large stones	0.26	Content of large stones	0.26
Lambring	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
366:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.26	Content of large stones	0.26	Content of large stones	0.26
Lambring	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
367:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42

Table 9.--Recreation--Continued

Map symbol and soil name	Pct. of map unit	Camp areas		Picnic areas		Paths and trails	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
367:							
Lambring	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	15	Not rated		Not rated		Not rated	
368:							
Westbutte	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Observation	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Too stony	0.53
		Too stony	0.53	Too stony	0.53	Content of large stones	0.42
		Content of large stones	0.42	Content of large stones	0.42		
		Restricted permeability	0.41	Restricted permeability	0.41		
369:							
Westbutte	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Too stony	0.53	Too stony	0.53	Too stony	0.53
		Content of large stones	0.42	Content of large stones	0.42	Content of large stones	0.42
Rock outcrop	30	Not rated		Not rated		Not rated	
Pernty	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00		
		Gravel content	0.25	Gravel content	0.25		
370:							
Widowspring	85	Not limited		Not limited		Not limited	
371:							
Windybutte	85	Not limited		Not limited		Not limited	
372:							
Wolverine	85	Very limited		Very limited		Very limited	
		Too sandy	1.00	Too sandy	1.00	Too sandy	1.00
		Slope	0.04	Slope	0.04	Water erosion	1.00
373:							
Denied access	100	Not rated		Not rated		Not rated	

Table 10.--Building Site Development

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Actem	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to thin cemented pan	1.00
		Depth to thin cemented pan	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	1.00	Cutbanks cave	0.10
				Frost action	0.50		
2:							
Actem	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to thin cemented pan	1.00
		Depth to thin cemented pan	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Depth to hard bedrock	1.00	Slope	0.04
				Frost action	0.50		
3:							
Actem	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Depth to thin cemented pan	1.00
		Depth to thin cemented pan	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	1.00	Cutbanks cave	0.10
				Frost action	0.50		
Robson	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.03	Slope	0.37	Content of large stones	0.03
				Content of large stones	0.03		
4:							
Alvodest	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Too clayey	0.28
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		
5:							
Alvodest	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Too clayey	0.28
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5:							
Playas	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Shrink-swell	1.00	Too clayey	0.50
				Ponding	1.00		
6:							
Alyan	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Too clayey	0.12
		Slope	0.04	Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50	Slope	0.04
				Slope	0.04		
7:							
Anatone	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	0.47	Frost action	0.50	Content of large stones	0.47
				Content of large stones	0.47	Cutbanks cave	0.10
8:							
Anatone, moist	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.02	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.02	Content of large stones	0.02
Anatone	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.06	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.06	Content of large stones	0.06
9:							
Anatone	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Frost action	0.50	Slope	0.37
		Content of large stones	0.02	Slope	0.37	Cutbanks cave	0.10
				Content of large stones	0.02	Content of large stones	0.02
Teguro	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9:							
Observation---------	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Frost action	0.50	Too clayey	0.03
				Slope	0.37		
10:							
Anatone, moist------	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Frost action	0.50	Content of large stones	0.12
				Content of large stones	0.12	Cutbanks cave	0.10
Egyptcreek----------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.90	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop--------	15	Not rated		Not rated		Not rated	
11:							
Anatone, moist------	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Frost action	0.50	Content of large stones	0.12
				Content of large stones	0.12	Cutbanks cave	0.10
Minam---------------	20	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
Rock outcrop--------	15	Not rated		Not rated		Not rated	
12:							
Anatone-------------	35	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.47	Frost action	0.50	Content of large stones	0.47
				Content of large stones	0.47	Cutbanks cave	0.10
Teguro--------------	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
Rock outcrop--------	20	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13:							
Anatone	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.12	Frost action	0.50	Content of large stones	0.12
				Content of large stones	0.12	Cutbanks cave	0.10
Westbutte	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	0.96	Slope	1.00
		Content of large stones	0.96	Depth to hard bedrock	0.90	Content of large stones	0.96
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	
14:							
Anawalt	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		
15:							
Anawalt	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		
Lonely	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	0.90	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
				Frost action	0.50		
16:							
Anawalt	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		
Oreneva	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.99	Depth to hard bedrock	1.00
				Frost action	0.50	Cutbanks cave	1.00
17:							
Anawalt	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
17:							
Raz	40	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to thin cemented pan	1.00	Depth to hard bedrock	0.95	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
18:							
Ateron	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Content of large stones	1.00	Cutbanks cave	0.10
				Frost action	0.50		
19:							
Ateron	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Frost action	0.50		
Rubble land	35	Not rated		Not rated		Not rated	
20:							
Ateron	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Cutbanks cave	0.10
				Low strength	1.00		
Observation	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.16
		Slope	0.16	Depth to hard bedrock	0.95	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Too clayey	0.03
				Slope	0.16	Content of large stones	0.01
21:							
Atlow	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.18
		Content of large stones	0.18	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.18		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
22:							
Atlow	70	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.18
		Content of large stones	0.18	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.18		
Rock outcrop	15	Not rated		Not rated		Not rated	
23:							
Atlow	70	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.18
		Content of large stones	0.18	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.18		
Rock outcrop	15	Not rated		Not rated		Not rated	
24:							
Atlow	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.18
		Content of large stones	0.18	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.18		
Skedaddle	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.96	Content of large stones	0.96	Content of large stones	0.96
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
25:							
Ausmus	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.89	Frost action	0.50	Depth to saturated zone	0.89
						Cutbanks cave	0.10
26:							
Ausmus	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.89	Frost action	0.50	Depth to saturated zone	0.89
						Cutbanks cave	0.10
27:							
Baconcamp	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28:							
Baconcamp	45	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Slope	0.84	Depth to hard bedrock	1.00
		Slope	0.84	Frost action	0.50	Cutbanks cave	1.00
				Depth to hard bedrock	0.10	Slope	0.84
Clamp	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.84	Slope	0.84	Slope	0.84
		Content of large stones	0.80	Content of large stones	0.80	Content of large stones	0.80
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
29:							
Baconcamp	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Clamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.80	Content of large stones	0.80	Content of large stones	0.80
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
30:							
Baconcamp	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Clamp	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.93	Content of large stones	0.93	Content of large stones	0.93
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
31:							
Baconcamp	70	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Frost action	0.50	Depth to hard bedrock	1.00
		Slope	0.04	Depth to hard bedrock	0.10	Cutbanks cave	1.00
				Slope	0.04	Slope	0.04
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
32:							
Baconcamp	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
33:							
Baconcamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Rock outcrop	30	Not rated		Not rated		Not rated	
Hackwood	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	1.00
34:							
Baconcamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Hapgood	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.93	Content of large stones	0.59	Depth to hard bedrock	0.93
		Content of large stones	0.59	Frost action	0.50	Content of large stones	0.59
						Cutbanks cave	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	
35:							
Baconcamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Krackle	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Shrink-swell	0.50	Content of large stones	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
Rock outcrop	15	Not rated		Not rated		Not rated	
36:							
Berdugo	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
37:							
Berdugo	50	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
Catlow	35	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
38:							
Bigfrog	45	Very limited		Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
				Frost action	0.50		
Brock	40	Very limited		Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
				Frost action	0.50		
39:							
Bocker	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.93	Content of large stones	0.93	Content of large stones	0.93
				Frost action	0.50	Cutbanks cave	0.10
Westbutte	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Depth to hard bedrock	0.90	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
40:							
Boravall	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00	Too clayey	0.03
				Ponding	1.00		
Playas	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Shrink-swell	1.00	Too clayey	0.50
				Ponding	1.00		
41:							
Borobey	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Frost action	0.50	Cutbanks cave	1.00
				Slope	0.04	Slope	0.04

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42:							
Boulder Lake--------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Low strength	1.00	Cutbanks cave	1.00
		Ponding	1.00	Shrink-swell	1.00	Ponding	1.00
				Ponding	1.00	Too clayey	0.50
				Frost action	0.50		
43:							
Boulder Lake--------	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Low strength	1.00	Cutbanks cave	1.00
		Ponding	1.00	Shrink-swell	1.00	Ponding	1.00
				Ponding	1.00	Too clayey	0.50
				Frost action	0.50		
Merlin--------------	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
44:							
Boulder Lake--------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Low strength	1.00	Cutbanks cave	1.00
		Ponding	1.00	Shrink-swell	1.00	Ponding	1.00
				Ponding	1.00	Too clayey	0.50
				Frost action	0.50		
Spangenburg---------	40	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
45:							
Brabble-------------	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.50	Frost action	0.50	Depth to thin cemented pan	0.20
		Depth to thin cemented pan	0.20	Depth to hard bedrock	0.01	Cutbanks cave	0.10
Calderwood----------	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.13
		Content of large stones	0.13	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.13		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
46:							
Brace	40	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Frost action	0.50	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
		Depth to thin cemented pan	0.29	Depth to hard bedrock	0.06	Depth to thin cemented pan	0.29
						Cutbanks cave	0.10
Coztur	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.01	Slope	0.37	Content of large stones	0.01
				Content of large stones	0.01		
Rock outcrop	15	Not rated		Not rated		Not rated	
47:							
Brace	45	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Frost action	0.50	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
		Depth to thin cemented pan	0.29	Depth to hard bedrock	0.06	Depth to thin cemented pan	0.29
						Cutbanks cave	0.10
Vergas	40	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
48:							
Bruncan, thick surface	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Bruncan, thin surface	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
49:							
Brunzell	90	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
50:							
Bucklake	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	0.35	Cutbanks cave	1.00
				Low strength	0.22		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
51:							
Bucklake	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.50	Depth to hard bedrock	0.35	Cutbanks cave	1.00
				Low strength	0.22		
Mahoon	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Depth to soft bedrock	0.84	Low strength	1.00	Depth to soft bedrock	0.84
						Too clayey	0.50
Rubble land	20	Not rated		Not rated		Not rated	
52:							
Calderwood	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.13
		Content of large stones	0.13	Content of large stones	0.13	Cutbanks cave	0.10
53:							
Calderwood	65	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.23
		Content of large stones	0.23	Content of large stones	0.23	Cutbanks cave	0.10
McConnel	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.16	Slope	0.16	Cutbanks cave	1.00
						Slope	0.16
54:							
Carryback	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
		Slope	0.37	Depth to hard bedrock	0.90	Slope	0.37
				Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
55:							
Carryback	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.84
		Slope	0.84	Depth to hard bedrock	0.90	Too clayey	0.50
				Slope	0.84	Cutbanks cave	0.10
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
56:							
Carryback	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
		Slope	0.37	Depth to hard bedrock	0.90	Slope	0.37
				Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
57:							
Carryback	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.63
		Slope	0.63	Depth to hard bedrock	0.90	Too clayey	0.50
				Slope	0.63	Cutbanks cave	0.10
				Frost action	0.50		
58:							
Carryback, thin surface	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
		Slope	0.37	Depth to hard bedrock	0.90	Slope	0.37
				Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
Carryback, thick surface	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
		Slope	0.37	Depth to hard bedrock	0.90	Slope	0.37
				Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
59:							
Carryback, thin surface	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		
Carryback, south slopes	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
59:							
Carryback, north slopes	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		
60:							
Carryback, south slopes	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		
Carryback, north slopes	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		
61:							
Carryback	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
		Content of large stones	0.06	Depth to hard bedrock	0.90	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Content of large stones	0.06
				Content of large stones	0.06	Slope	0.04
Pearlwise	30	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Depth to hard bedrock	1.00
		Slope	0.04	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.04	Slope	0.04
62:							
Carryback	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
		Content of large stones	0.06	Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50	Content of large stones	0.06
Pearlwise	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
63:							
Carryback	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		
Dickle	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
64:							
Carvix	85	Not limited		Not limited		Somewhat limited	
						Cutbanks cave	0.10
65:							
Clamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.80	Content of large stones	0.80	Content of large stones	0.80
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Baconcamp	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Hackwood	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	1.00
66:							
Coztur	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Slope	0.04
				Slope	0.04		
67:							
Crowcamp	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Cutbanks cave	1.00
		Depth to saturated zone	0.95	Shrink-swell	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	0.95
				Frost action	0.50	Too clayey	0.28

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68:							
Crowcamp	50	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Cutbanks cave	1.00
		Depth to saturated zone	0.95	Shrink-swell	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	0.95
				Frost action	0.50	Too clayey	0.28
Ausmus	20	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.89	Frost action	0.50	Depth to saturated zone	0.89
						Cutbanks cave	0.10
Poujade	15	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.90	Low strength	0.78	Depth to saturated zone	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
69:							
Davey	85	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
70:							
Davey	45	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
Oreanna	40	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
71:							
Defenbaugh	85	Not limited		Somewhat limited		Somewhat limited	
				Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
72:							
Deppy	85	Very limited		Somewhat limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	1.00
		Slope	0.16	Shrink-swell	0.50	Slope	0.16
				Slope	0.16		
73:							
Deppy	45	Very limited		Somewhat limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	1.00
		Slope	0.16	Shrink-swell	0.50	Slope	0.16
				Slope	0.16		
Tumtum	40	Very limited		Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	1.00
		Slope	0.16	Shrink-swell	0.50	Slope	0.16
				Slope	0.16		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
74:							
Dickle	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
75:							
Dixon	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
				Frost action	0.50		
76:							
Dixon	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
				Frost action	0.50		
77:							
Dixon	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
		Slope	0.04	Frost action	0.50	Slope	0.04
				Slope	0.04		
78:							
Dixon	50	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
				Frost action	0.50		
Droval	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Too clayey	0.88
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		
79:							
Dogmountain	85	Very limited		Somewhat limited		Very limited	
		Depth to thin cemented pan	0.99	Slope	0.63	Cutbanks cave	1.00
		Slope	0.63	Frost action	0.50	Depth to thin cemented pan	0.99
						Slope	0.63
80:							
Doyn	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
81:							
Doyn	60	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
81:							
Merlin	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
82:							
Doyn	60	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Cutbanks cave	0.10
Arcia	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Cutbanks cave	1.00
		Slope	1.00	Low strength	1.00	Slope	1.00
				Depth to hard bedrock	0.95	Too clayey	0.03
				Frost action	0.50		
83:							
Drewsey	85	Not limited		Not limited		Somewhat limited	
						Cutbanks cave	0.10
84:							
Drewsey	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
85:							
Drewsey	35	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
Torriorthents	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
Gumble	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Slope	0.37		
86:							
Droval	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Too clayey	0.88
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
87:							
Duff	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to hard bedrock	0.93	Frost action	0.50	Cutbanks cave	1.00
						Depth to hard bedrock	0.93
88:							
Duff	45	Somewhat limited		Somewhat limited		Very limited	
		Depth to hard bedrock	0.93	Slope	0.84	Cutbanks cave	1.00
		Slope	0.84	Frost action	0.50	Depth to hard bedrock	0.93
						Slope	0.84
Clamp	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.84	Slope	0.84	Slope	0.84
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.40
		Content of large stones	0.40	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.40		
89:							
Duff	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.93	Frost action	0.50	Cutbanks cave	1.00
						Depth to hard bedrock	0.93
Clamp	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.40
		Content of large stones	0.40	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.40		
90:							
Duff	60	Somewhat limited		Somewhat limited		Very limited	
		Depth to hard bedrock	0.93	Frost action	0.50	Cutbanks cave	1.00
						Depth to hard bedrock	0.93
Hackwood	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Cutbanks cave	1.00
				Frost action	0.50	Slope	1.00
91:							
Edemaps	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Depth to thin cemented pan	0.84
		Depth to thin cemented pan	0.84	Slope	0.84	Slope	0.84
		Slope	0.84	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
92:							
Edemaps	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Depth to thin cemented pan	0.84
		Depth to thin cemented pan	0.84	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
Carryback	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.50
				Depth to hard bedrock	0.90	Cutbanks cave	0.10
				Frost action	0.50		
93:							
Enko	85	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
94:							
Enko	50	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
Catlow	35	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
95:							
Enko	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Cutbanks cave	1.00
						Slope	0.37
Catlow	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Cutbanks cave	1.00
						Slope	0.37
96:							
Enko	50	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
Catlow	35	Somewhat limited		Somewhat limited		Very limited	
		Content of large stones	0.90	Content of large stones	0.90	Cutbanks cave	1.00
		Slope	0.84	Slope	0.84	Content of large stones	0.90
						Slope	0.84
97:							
Erakatak	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.84	Content of large stones	0.48
		Content of large stones	0.48	Frost action	0.50	Too clayey	0.28
				Content of large stones	0.48	Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
98:							
Erakatak	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.84	Too clayey	0.28
		Content of large stones	0.02	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.02	Content of large stones	0.02
Lambring	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.01	Content of large stones	0.01
Rock outcrop	10	Not rated		Not rated		Not rated	
99:							
Erakatak	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.84	Too clayey	0.28
		Content of large stones	0.02	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.02	Content of large stones	0.02
Merlin	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Slope	1.00	Content of large stones	0.01
				Frost action	0.50		
Westbutte	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
100:							
Erakatak	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.84	Too clayey	0.28
		Content of large stones	0.19	Frost action	0.50	Content of large stones	0.19
				Content of large stones	0.19	Cutbanks cave	0.10
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Erakatak	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.84	Too clayey	0.28
		Content of large stones	0.19	Frost action	0.50	Content of large stones	0.19
				Content of large stones	0.19	Cutbanks cave	0.10
Ninemile	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	1.00		
				Frost action	0.50		
Hapgood	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.95	Content of large stones	0.95	Content of large stones	0.95
		Depth to hard bedrock	0.93	Frost action	0.50	Depth to hard bedrock	0.93
						Cutbanks cave	0.10
102:							
Felcher	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.97	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	1.00
				Frost action	0.50		
103:							
Felcher	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.85	Content of large stones	0.85	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.85
				Frost action	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
104:							
Felcher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.97	Content of large stones	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	30	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
104:							
Brezniak	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Frost action	0.50		
105:							
Felcher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.57	Content of large stones	0.57	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.57
				Frost action	0.50		
Rock outcrop	30	Not rated		Not rated		Not rated	
Westbutte	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
106:							
Felcher	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	0.97	Cutbanks cave	1.00
		Content of large stones	0.85	Content of large stones	0.85	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.85
				Frost action	0.50		
Sagehen	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
107:							
Felcher	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.85	Content of large stones	0.85	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.85
				Frost action	0.50		
Sagehen	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Content of large stones	0.07	Frost action	0.50	Content of large stones	0.07
				Content of large stones	0.07		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
108:							
Felcher	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.57	Content of large stones	0.57	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.57
				Frost action	0.50		
Fitzwater	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Depth to hard bedrock	0.01	Frost action	0.50	Cutbanks cave	0.10
						Depth to hard bedrock	0.01
Rock outcrop	15	Not rated		Not rated		Not rated	
109:							
Felcher	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.85	Content of large stones	0.85	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.85
				Frost action	0.50		
Pernty	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.26
		Content of large stones	0.26	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.26		
Ninemile	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	1.00		
				Frost action	0.50		
110:							
Felcher	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.85	Content of large stones	0.85	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.85
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
110:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
111:							
Final	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Low strength	1.00	Depth to saturated zone	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Too clayey	0.12
				Frost action	0.50	Cutbanks cave	0.10
				Depth to saturated zone	0.48		
112:							
Fitzwater	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Depth to hard bedrock	0.01	Frost action	0.50	Cutbanks cave	0.10
						Depth to hard bedrock	0.01
Hapgood, thick surface	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.93	Content of large stones	0.59	Depth to hard bedrock	0.93
		Content of large stones	0.59	Frost action	0.50	Content of large stones	0.59
						Cutbanks cave	0.10
Hapgood, thin surface	15	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.93	Content of large stones	0.89	Depth to hard bedrock	0.93
		Content of large stones	0.89	Frost action	0.50	Content of large stones	0.89
						Cutbanks cave	0.10
113:							
Fitzwater	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	1.00	Content of large stones	1.00	Content of large stones	1.00
		Depth to hard bedrock	0.01	Frost action	0.50	Cutbanks cave	0.10
						Depth to hard bedrock	0.01
Rock outcrop	25	Not rated		Not rated		Not rated	
114:							
Flank	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Cutbanks cave	0.10
Lava flows	35	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
115:							
Fourwheel	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.72
				Depth to hard bedrock	0.97	Cutbanks cave	0.10
				Frost action	0.50		
116:							
Fourwheel	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Low strength	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.72
				Depth to hard bedrock	0.97	Cutbanks cave	0.10
				Frost action	0.50		
117:							
Freznik	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Too clayey	0.28
		Slope	0.04	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.10	Slope	0.04
				Slope	0.04		
118:							
Fury	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
119:							
Fury	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
120:							
Fury	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
Degarmo	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
				Low strength	1.00	Cutbanks cave	1.00
				Shrink-swell	1.00		
				Depth to saturated zone	0.48		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
121:							
Fury	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
Housefield	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Content of organic matter	1.00
						Too clayey	0.50
						Cutbanks cave	0.10
122:							
Fury	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
Housefield	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Content of organic matter	1.00
						Too clayey	0.50
						Cutbanks cave	0.10
Skidoosprings	15	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Cutbanks cave	0.10
123:							
Fury	55	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
Opie	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
124:							
Fury	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
Skidoosprings	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Cutbanks cave	0.10
Opie	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00
125:							
Fury	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Shrink-swell	0.50		
Widowspring	40	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.61	Frost action	1.00	Depth to saturated zone	0.61
				Low strength	1.00	Cutbanks cave	0.10
126:							
Gaib	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
127:							
Gaib	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Slope	0.04
				Slope	0.04		
Ateron	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Content of large stones	1.00	Slope	0.04
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
128:							
Gaib	65	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
129:							
Gilispie	65	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	0.10
		Slope	0.04	Shrink-swell	0.50	Slope	0.04
				Frost action	0.50		
				Slope	0.04		
Noname	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Slope	0.04
				Slope	0.04		
130:							
Gochea	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
131:							
Goldrun	55	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
Alvodest	30	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Too clayey	0.28
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		
132:							
Gradon	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Depth to thin cemented pan	0.29
		Depth to thin cemented pan	0.29	Frost action	0.50	Cutbanks cave	0.10
133:							
Guano	85	Very limited		Somewhat limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Slope	0.04
				Slope	0.04		
134:							
Gumble	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
135:							
Gumble	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
136:							
Gumble	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Slope	0.37		
Mahoon	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Depth to soft bedrock	0.84	Low strength	1.00	Depth to soft bedrock	0.84
						Too clayey	0.50
Cagle	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Depth to soft bedrock	0.06	Low strength	1.00	Depth to soft bedrock	0.06
						Too clayey	0.03
137:							
Hackwood	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	1.00
138:							
Hackwood	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	1.00
Baconcamp	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
139:							
Hapgood	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.95	Content of large stones	0.95	Content of large stones	0.95
		Depth to hard bedrock	0.93	Frost action	0.50	Depth to hard bedrock	0.93
						Cutbanks cave	0.10
140:							
Hart Camp	85	Very limited		Somewhat limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Content of large stones	0.20	Frost action	0.50	Content of large stones	0.20
		Slope	0.16	Content of large stones	0.20	Slope	0.16
				Slope	0.16	Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
141:							
Hart Camp----------	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Content of large stones	0.20	Frost action	0.50	Content of large stones	0.20
				Content of large stones	0.20	Cutbanks cave	0.10
142:							
Helphenstein--------	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Frost action	0.50	Cutbanks cave	0.10
Goldrun----------	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Cutbanks cave	1.00
						Slope	0.04
143:							
Homefield----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Content of organic matter	1.00
						Too clayey	0.50
						Cutbanks cave	0.10
144:							
Housefield----------	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Content of organic matter	1.00
						Too clayey	0.50
						Cutbanks cave	0.10
145:							
Housefield----------	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Content of organic matter	1.00
						Too clayey	0.50
						Cutbanks cave	0.10
Doubleo----------	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.94	Too clayey	0.50
						Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
146:							
Icene	60	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Ponding	1.00
		Depth to saturated zone	0.95	Ponding	1.00	Depth to saturated zone	0.95
				Frost action	0.50	Cutbanks cave	0.10
Playas	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Shrink-swell	1.00	Too clayey	0.50
				Ponding	1.00		
147:							
Icene	60	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.95	Low strength	1.00	Depth to saturated zone	0.95
				Frost action	0.50	Cutbanks cave	0.10
Playas	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Shrink-swell	1.00	Too clayey	0.50
				Ponding	1.00		
148:							
Jesse Camp	85	Somewhat limited		Very limited		Very limited	
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	1.00
				Shrink-swell	0.50		
				Frost action	0.50		
149:							
Jimgreen	90	Very limited		Very limited		Very limited	
		Subsidence	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Subsidence	1.00	Content of organic matter	1.00
		Content of organic matter	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Cutbanks cave	0.10
150:							
Jimgreen	50	Very limited		Very limited		Very limited	
		Subsidence	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Subsidence	1.00	Content of organic matter	1.00
		Content of organic matter	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Ponding	1.00	Cutbanks cave	0.10
Housefield	35	Very limited		Very limited		Very limited	
		Subsidence	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Subsidence	1.00	Ponding	1.00
		Ponding	1.00	Frost action	1.00	Content of organic matter	1.00
				Ponding	1.00	Too clayey	0.50
						Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
151:							
Kegler	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Depth to thin cemented pan	0.03	Frost action	0.50	Depth to thin cemented pan	0.03
152:							
Kerrfield	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.63	Slope	0.63	Cutbanks cave	1.00
		Depth to soft bedrock	0.20	Frost action	0.50	Slope	0.63
						Depth to soft bedrock	0.20
153:							
Klicker	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	0.97	Slope	1.00
		Content of large stones	0.97	Depth to hard bedrock	0.90	Content of large stones	0.97
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
154:							
Klicker	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
155:							
Krackle, north slopes	55	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Shrink-swell	0.50	Content of large stones	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
Krackle, south slopes	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Shrink-swell	0.50	Content of large stones	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
156:							
Krackle	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156:							
Baconcamp	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Frost action	0.50	Cutbanks cave	1.00
				Depth to hard bedrock	0.10	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
157:							
Krackle	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Shrink-swell	0.50	Slope	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
Baconcamp	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Frost action	0.50	Cutbanks cave	1.00
				Depth to hard bedrock	0.10	Slope	1.00
Rock outcrop	15	Not rated		Not rated		Not rated	
158:							
Krackle	70	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Shrink-swell	0.50	Content of large stones	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
Rock outcrop	15	Not rated		Not rated		Not rated	
159:							
Krackle	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Shrink-swell	0.50	Content of large stones	1.00
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
Baconcamp	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00
Hackwood	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
160:							
Ladycomb	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
				Low strength	0.22		
161:							
Lambranch	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
				Frost action	0.50	Too clayey	0.03
162:							
Lambring	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.25	Content of large stones	0.25
Egyptcreek	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.90	Slope	1.00
		Content of large stones	0.07	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.07	Content of large stones	0.07
Rock outcrop	15	Not rated		Not rated		Not rated	
163:							
Lambring, thick surface	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.01	Content of large stones	0.01
Lambring, thin surface	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.01	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.01	Content of large stones	0.01
Rock outcrop	15	Not rated		Not rated		Not rated	
164:							
Lambring	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.47	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.47	Content of large stones	0.47
Rubble land	35	Not rated		Not rated		Not rated	
165:							
Langslet	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Low strength	1.00		
				Shrink-swell	1.00	Cutbanks cave	0.10
						Too clayey	0.03

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
166:							
Lava flows	85	Not rated		Not rated		Not rated	
167:							
Lava flows	85	Not rated		Not rated		Not rated	
Flank	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
						Cutbanks cave	0.10
168:							
Lawen	85	Not limited		Somewhat limited		Somewhat limited	
				Frost action	0.50	Cutbanks cave	0.10
169:							
Leathers	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
170:							
Leathers	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
171:							
Leemorris	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Frost action	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50		
		Slope	0.04	Depth to hard bedrock	0.46	Cutbanks cave	1.00
				Slope	0.04	Too clayey	0.50
						Slope	0.04
Buckwilder	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Frost action	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00		
		Slope	0.04	Shrink-swell	1.00	Too clayey	1.00
				Depth to hard bedrock	0.71	Cutbanks cave	0.10
				Slope	0.04	Slope	0.04
172:							
Leemorris	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	1.00		
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
				Depth to hard bedrock	0.46	Cutbanks cave	1.00
						Too clayey	0.50
Buckwilder	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Frost action	1.00		
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
				Shrink-swell	1.00	Too clayey	1.00
				Depth to hard bedrock	0.71	Cutbanks cave	0.10
173:							
Legler	85	Very limited		Somewhat limited		Somewhat limited	
		Flooding	1.00	Low strength	0.78	Cutbanks cave	0.10
		Shrink-swell	0.50	Shrink-swell	0.50		
				Frost action	0.50		
				Flooding	0.40		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
174:							
Locane	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	0.10
		Content of large stones	0.09	Frost action	0.50	Content of large stones	0.09
				Content of large stones	0.09		
175:							
Lolak	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Low strength	1.00	Too clayey	0.50
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		
176:							
Lolak	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Low strength	1.00	Too clayey	0.50
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Ausmus	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.89	Frost action	0.50	Depth to saturated zone	0.89
						Cutbanks cave	0.10
177:							
Lonely	50	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.90	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
				Frost action	0.50		
Doyn	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
						Cutbanks cave	0.10
178:							
Lonely	50	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	0.90	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	1.00
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
178:							
Robson	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.16
		Slope	0.16	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.07	Slope	0.16	Content of large stones	0.07
				Content of large stones	0.07		
179:							
Longcreek	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	0.37
		Content of large stones	0.37	Low strength	0.78	Cutbanks cave	0.10
				Frost action	0.50		
Cleavage	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
180:							
Longcreek	75	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	0.37
		Content of large stones	0.37	Low strength	0.78	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	10	Not rated		Not rated		Not rated	
181:							
Loupence	85	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Frost action	1.00	Flooding	0.60
		Depth to saturated zone	0.47	Flooding	1.00	Depth to saturated zone	0.47
				Low strength	0.22	Cutbanks cave	0.10
182:							
Madeline	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		
183:							
Madeline	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
184:							
Madeline	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		
Ninemile	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
185:							
Madeline	65	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Low strength	1.00		
				Frost action	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
186:							
Mahoon	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Depth to soft bedrock	0.84	Low strength	1.00	Depth to soft bedrock	0.84
		Slope	0.37	Slope	0.37	Too clayey	0.50
						Slope	0.37
187:							
Mahoon	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Depth to soft bedrock	0.84	Low strength	1.00	Depth to soft bedrock	0.84
		Slope	0.37	Slope	0.37	Too clayey	0.50
						Slope	0.37
Brezniak	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Slope	0.37	Cutbanks cave	0.10
Longcreek	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Low strength	0.78	Cutbanks cave	0.10
		Content of large stones	0.01	Slope	0.37	Content of large stones	0.01
				Content of large stones	0.01		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
188:							
Mahoon	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Slope	1.00	Low strength	1.00	Slope	1.00
		Depth to soft bedrock	0.84	Slope	1.00	Depth to soft bedrock	0.84
						Too clayey	0.50
Cagle	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Depth to soft bedrock	0.06	Low strength	1.00	Depth to soft bedrock	0.06
						Too clayey	0.03
189:							
Mahoon	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Depth to soft bedrock	0.84	Low strength	1.00	Depth to soft bedrock	0.84
		Slope	0.37	Slope	0.37	Too clayey	0.50
						Slope	0.37
Risley	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Slope	0.37	Low strength	1.00	Slope	0.37
		Depth to soft bedrock	0.01	Slope	0.37	Too clayey	0.12
						Depth to soft bedrock	0.01
190:							
Mahoon	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Depth to soft bedrock	0.84	Low strength	1.00	Depth to soft bedrock	0.84
						Too clayey	0.50
Cotant	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Slope	1.00
		Depth to soft bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
191:							
Mcbain	45	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.73	Shrink-swell	0.50	Depth to saturated zone	0.73
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
Ausmus	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.89	Frost action	0.50	Depth to saturated zone	0.89
						Cutbanks cave	0.10
192:							
McConnel	85	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
193:							
Merlin	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Shrink-swell	1.00	Slope	0.04
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.04		
194:							
Merlin, very stony	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
Merlin, very cobbly	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
195:							
Merlin	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
Ateron	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Content of large stones	1.00	Cutbanks cave	0.10
				Frost action	0.50		
196:							
Merlin	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
Ateron	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
196:							
Rubble land---------	15	Not rated		Not rated		Not rated	
197:							
Merlin--------------	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
Ateron--------------	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Frost action	0.50		
Ticino--------------	25	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.54	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.79	Shrink-swell	0.50	Depth to soft bedrock	0.79
		Shrink-swell	0.50	Frost action	0.50	Slope	0.37
		Slope	0.37	Slope	0.37	Cutbanks cave	0.10
198:							
Merlin--------------	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
Erakatak------------	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.84	Slope	0.37
		Slope	0.37	Frost action	0.50	Too clayey	0.28
		Content of large stones	0.02	Slope	0.37	Cutbanks cave	0.10
				Content of large stones	0.02	Content of large stones	0.02
Teguro--------------	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
199:							
Merlin--------------	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199:							
Observation---------	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Too clayey	0.03
				Slope	0.37	Content of large stones	0.01
200:							
Merlin--------------	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Shrink-swell	1.00	Content of large stones	0.01
				Frost action	0.50		
Observation---------	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Depth to hard bedrock	0.95	Too clayey	0.03
				Frost action	0.50	Content of large stones	0.01
201:							
Merlin--------------	70	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Shrink-swell	1.00	Slope	0.04
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.04		
Rubble land---------	15	Not rated		Not rated		Not rated	
202:							
Merlin--------------	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Shrink-swell	1.00	Slope	0.04
				Frost action	0.50		
				Slope	0.04		
Teguro--------------	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Slope	0.04
				Slope	0.04		
203:							
Merlin--------------	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203:							
Teguro	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.03	Slope	0.37	Content of large stones	0.03
				Content of large stones	0.03		
204:							
Mesman	85	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
205:							
Mesman	85	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
206:							
Mesman	45	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
Norad	40	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	1.00	Depth to saturated zone	0.15
		Depth to saturated zone	0.15	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
207:							
Middlebox	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slope	0.84	Slope	0.84	Slope	0.84
		Depth to soft bedrock	0.10			Cutbanks cave	0.10
						Depth to soft bedrock	0.10
208:							
Middlebox, north slopes	60	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	0.10			Cutbanks cave	0.10
						Depth to soft bedrock	0.10
Middlebox, south slopes	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to soft bedrock	0.10			Cutbanks cave	0.10
						Depth to soft bedrock	0.10
209:							
Minam	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
210:							
Minam	60	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
210:							
Welch	25	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Frost action	1.00	Flooding	0.80
		Shrink-swell	0.50	Flooding	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Low strength	0.22		
211:							
Modoc	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to thin cemented pan	0.84	Shrink-swell	0.50	Cutbanks cave	1.00
		Shrink-swell	0.50	Frost action	0.50	Depth to thin cemented pan	0.84
		Slope	0.04	Slope	0.04	Slope	0.04
212:							
Morfitt	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
213:							
Morganhills	85	Very limited		Somewhat limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
				Frost action	0.50	Cutbanks cave	0.10
214:							
Morganhills, more than 12 percent slopes	50	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Morganhills, less than 12 percent slopes	40	Very limited		Somewhat limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
				Frost action	0.50	Cutbanks cave	0.10
215:							
Mound	85	Very limited		Very limited		Somewhat limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Content of large stones	1.00	Depth to hard bedrock	0.18
		Depth to hard bedrock	0.18	Frost action	0.50	Too clayey	0.12
				Slope	0.37	Cutbanks cave	0.10
216:							
Nevador	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
217:							
Ninemile	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard	1.00	Depth to hard	1.00
		Depth to hard	1.00	bedrock		bedrock	
		bedrock		Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
218:							
Ninemile	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard	1.00	Depth to hard	1.00
		Depth to hard	1.00	bedrock		bedrock	
		bedrock		Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	1.00		
				Frost action	0.50		
219:							
Ninemile	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard	1.00	Depth to hard	1.00
		Depth to hard	1.00	bedrock		bedrock	
		bedrock		Low strength	1.00	Slope	0.16
		Slope	0.16	Shrink-swell	1.00	Cutbanks cave	0.10
				Frost action	0.50		
				Slope	0.16		
220:							
Ninemile	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard	1.00	Depth to hard	1.00
		Depth to hard	1.00	bedrock		bedrock	
		bedrock		Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
Carvix	30	Not limited		Somewhat limited		Somewhat limited	
				Frost action	0.50	Cutbanks cave	0.10
221:							
Ninemile	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard	1.00	Depth to hard	1.00
		Depth to hard	1.00	bedrock		bedrock	
		bedrock		Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
				Frost action	0.50		
				Slope	0.37		
Doyn	25	Very limited		Very limited		Very limited	
		Depth to hard	1.00	Depth to hard	1.00	Depth to hard	1.00
		bedrock		bedrock		bedrock	
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
222:							
Ninemile	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard	1.00	Depth to hard	1.00
		Depth to hard	1.00	bedrock		bedrock	
		bedrock		Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
222:							
Edemaps	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Depth to thin cemented pan	0.84
		Depth to thin cemented pan	0.84	Frost action	0.50	Cutbanks cave	0.10
				Depth to hard bedrock	0.46		
223:							
Ninemile	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Shrink-swell	1.00	Slope	0.04
				Frost action	0.50		
				Slope	0.04		
Madeline	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Slope	0.04	Low strength	1.00	Slope	0.04
				Frost action	0.50		
				Slope	0.04		
224:							
Ninemile	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
Pearlwise	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
225:							
Ninemile	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
Reluctan	30	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
226:							
Ninemile	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	1.00		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
226:							
Reluctan	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	0.79	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rubble land	15	Not rated		Not rated		Not rated	
227:							
Ninemile	70	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
228:							
Ninemile	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.84
		Slope	0.84	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	0.84		
				Frost action	0.50		
Rubble land	20	Not rated		Not rated		Not rated	
229:							
Ninemile	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Slope	0.04	Shrink-swell	1.00	Slope	0.04
				Frost action	0.50		
				Slope	0.04		
Westbutte	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
		Slope	0.04	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.04	Slope	0.04
230:							
Ninemile, very cobbly	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	1.00		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
230:							
Westbutte	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Depth to hard bedrock	0.90	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Ninemile, extremely stony	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Slope	1.00	Content of large stones	0.01
				Frost action	0.50		
231:							
Ninemile, very cobbly	70	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		
Ninemile, extremely stony	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Shrink-swell	1.00	Content of large stones	0.01
				Frost action	0.50		
				Content of large stones	0.01		
232:							
Ninemile	70	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.84
		Slope	0.84	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	0.84		
				Frost action	0.50		
Felcher	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
		Content of large stones	0.28	Frost action	0.50	Content of large stones	0.28
				Content of large stones	0.28		
233:							
Noname	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
233:							
Dickle	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
234:							
Noname	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Duff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	0.93	Frost action	0.50	Cutbanks cave	1.00
						Depth to hard bedrock	0.93
Rock outcrop	20	Not rated		Not rated		Not rated	
235:							
Norad	85	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	1.00	Depth to saturated zone	0.15
		Depth to saturated zone	0.15	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
236:							
Norad	45	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	1.00	Depth to saturated zone	0.15
		Depth to saturated zone	0.15	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Spangenburg	40	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Ponding	1.00
		Depth to saturated zone	0.15	Ponding	1.00	Depth to saturated zone	0.15
				Shrink-swell	0.50		
				Frost action	0.50	Cutbanks cave	0.10
237:							
Nuss	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
238:							
Nuss	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Merlin	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Shrink-swell	1.00	Content of large stones	0.01
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
239:							
Nuss	55	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	30	Not rated		Not rated		Not rated	
240:							
Observation	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Frost action	0.50	Too clayey	0.03
				Slope	0.37		
241:							
Observation	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.84
		Slope	0.84	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Slope	0.84	Too clayey	0.03
				Frost action	0.50		
Rock outcrop	20	Not rated		Not rated		Not rated	
242:							
Observation	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Frost action	0.50	Too clayey	0.03
				Slope	0.37		
Royst	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Content of large stones	1.00
		Content of large stones	1.00	Low strength	1.00	Depth to soft bedrock	0.97
		Depth to soft bedrock	0.97	Depth to hard bedrock	0.95	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
Merlin	15	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
243:							
Observation	50	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Frost action	0.50	Too clayey	0.03
				Slope	0.37		
Teguro	35	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.06	Slope	0.37	Content of large stones	0.06
				Content of large stones	0.06		
244:							
Observation	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Depth to hard bedrock	0.95	Too clayey	0.03
				Frost action	0.50	Content of large stones	0.01
Lambring	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.23	Content of large stones	0.25
Rock outcrop	15	Not rated		Not rated		Not rated	
245:							
Olac	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Content of large stones	0.91	Content of large stones	0.91	Content of large stones	0.91
				Frost action	0.50	Cutbanks cave	0.10
Atlow	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.18
		Content of large stones	0.18	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.18		
246:							
Opie	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
247:							
Oreneva	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.99	Depth to hard bedrock	1.00
				Frost action	0.50	Cutbanks cave	1.00
248:							
Outerkirk	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
249:							
Outerkirk	85	Somewhat limited		Somewhat limited		Very limited	
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	1.00
250:							
Outerkirk	55	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
Defenbaugh	30	Not limited		Somewhat limited		Somewhat limited	
				Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
251:							
Ozamis	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Shrink-swell	0.50		
252:							
Pearlwise	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
253:							
Pernty	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Content of large stones	0.08	Frost action	0.50	Content of large stones	0.08
		Slope	0.04	Content of large stones	0.08	Slope	0.04
				Slope	0.04		
254:							
Pernty	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Content of large stones	0.08	Frost action	0.50	Content of large stones	0.08
				Content of large stones	0.08		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
255:							
Pernty	85	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.26
		Content of large stones	0.26	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.26		
256:							
Pernty	60	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Content of large stones	0.08	Frost action	0.50	Content of large stones	0.08
				Content of large stones	0.08		
Rock outcrop	25	Not rated		Not rated		Not rated	
257:							
Pernty	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Content of large stones	0.08	Frost action	0.50	Content of large stones	0.08
				Content of large stones	0.08		
Westbutte	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Depth to hard bedrock	0.90	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Ninemile	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	1.00
		Slope	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
				Slope	1.00		
				Frost action	0.50		
258:							
Pits	100	Not rated		Not rated		Not rated	
259:							
Playas	95	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Shrink-swell	1.00	Too clayey	0.50
				Ponding	1.00		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
260:							
Playas	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Shrink-swell	1.00	Too clayey	0.50
				Ponding	1.00		
Thenarrows	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00
261:							
Poall	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	0.78	Slope	0.37
		Slope	0.37	Shrink-swell	0.50	Cutbanks cave	0.10
				Slope	0.37		
262:							
Poall	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	0.10
				Shrink-swell	0.50		
Gumble	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	0.10
				Low strength	1.00		
263:							
Pomerening	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Cutbanks cave	1.00
						Slope	0.37
264:							
Pomerening	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.37	Slope	0.37	Cutbanks cave	1.00
						Slope	0.37
Flank	25	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
Lava flows	20	Not rated		Not rated		Not rated	
265:							
Porterfield	85	Very limited		Somewhat limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.37	Frost action	0.50	Slope	0.37
				Slope	0.37	Cutbanks cave	0.10
266:							
Porterfield	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
267:							
Porterfield	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Tincan	20	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	
268:							
Poujade	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.90	Low strength	0.78	Depth to saturated zone	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
269:							
Poujade	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.90	Low strength	0.78	Depth to saturated zone	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
270:							
Poujade	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.90	Low strength	0.78	Depth to saturated zone	0.90
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Ausmus	35	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.89	Frost action	0.50	Depth to saturated zone	0.89
						Cutbanks cave	0.10
271:							
Raz	85	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to thin cemented pan	1.00	Depth to hard bedrock	0.95	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
272:							
Raz	50	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to thin cemented pan	1.00	Depth to hard bedrock	0.95	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
272:							
Brace	35	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Frost action	0.50	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
		Depth to thin cemented pan	0.29	Depth to hard bedrock	0.06	Depth to thin cemented pan	0.29
						Cutbanks cave	0.10
273:							
Raz	50	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to thin cemented pan	1.00	Depth to hard bedrock	1.00
		Depth to thin cemented pan	1.00	Depth to hard bedrock	0.95	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
Brace	35	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Frost action	0.50	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
		Depth to thin cemented pan	0.29	Depth to hard bedrock	0.06	Depth to thin cemented pan	0.29
						Cutbanks cave	0.10
274:							
Reallis	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
275:							
Reallis	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
276:							
Reese	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Low strength	0.22		
277:							
Reluctan	85	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
278:							
Reluctan	85	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
279:							
Riddleranch---	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.71	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Lambring---	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.25	Content of large stones	0.25
Rock outcrop---	15	Not rated		Not rated		Not rated	
280:							
Riddleranch---	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.71	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop---	35	Not rated		Not rated		Not rated	
281:							
Rinconflat---	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Content of large stones	0.05	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.05	Content of large stones	0.05
282:							
Rio King---	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.61	Frost action	0.50	Depth to saturated zone	0.61
						Cutbanks cave	0.10
283:							
Rio King---	55	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.61	Frost action	0.50	Depth to saturated zone	0.61
						Cutbanks cave	0.10
Droval---	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Shrink-swell	1.00	Frost action	1.00	Ponding	1.00
		Ponding	1.00	Low strength	1.00	Too clayey	0.88
				Shrink-swell	1.00	Cutbanks cave	0.10
				Ponding	1.00		
284:							
Risley---	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Slope	0.37	Low strength	1.00	Slope	0.37
		Depth to soft bedrock	0.01	Slope	0.37	Too clayey	0.12
						Depth to soft bedrock	0.01

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
284:							
Gumble	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Slope	0.37		
285:							
Risley	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Slope	0.96	Low strength	1.00	Slope	0.96
		Depth to soft bedrock	0.01	Slope	0.96	Too clayey	0.12
						Depth to soft bedrock	0.01
Gumble	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	0.96
		Slope	0.96	Low strength	1.00	Cutbanks cave	0.10
				Slope	0.96		
Torriorthents	20	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	0.96	Slope	0.96	Slope	0.96
						Cutbanks cave	0.10
286:							
Risley	60	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Cutbanks cave	1.00
		Slope	0.84	Low strength	1.00	Slope	0.84
		Depth to soft bedrock	0.01	Slope	0.84	Too clayey	0.12
						Depth to soft bedrock	0.01
Rock outcrop	25	Not rated		Not rated		Not rated	
287:							
Robson	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Slope	0.04	Frost action	0.50	Slope	0.04
		Content of large stones	0.01	Slope	0.04	Content of large stones	0.01
				Content of large stones	0.01		
Anawalt	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Cutbanks cave	0.10
		Slope	0.04	Low strength	1.00	Slope	0.04
				Frost action	0.50		
				Slope	0.04		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
288:							
Robson	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	0.10
		Content of large stones	0.07	Frost action	0.50	Content of large stones	0.07
				Content of large stones	0.07		
Fourwheel	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Too clayey	0.72
				Depth to hard bedrock	0.97	Cutbanks cave	0.10
				Frost action	0.50		
289:							
Robson	55	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Slope	0.96
		Slope	0.96	Slope	0.96	Cutbanks cave	0.10
		Content of large stones	0.07	Frost action	0.50	Content of large stones	0.07
				Content of large stones	0.07		
Felcher	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Slope	1.00
		Content of large stones	0.57	Content of large stones	0.57	Cutbanks cave	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.57
				Frost action	0.50		
290:							
Roca	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Shrink-swell	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.97	Cutbanks cave	0.10
		Content of large stones	0.04	Frost action	0.50	Content of large stones	0.04
				Content of large stones	0.04		
291:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Rubble land	30	Not rated		Not rated		Not rated	
292:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Baconcamp	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Frost action	0.50	Slope	1.00
				Depth to hard bedrock	0.10	Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
293:							
Royst	65	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Content of large stones	1.00
		Content of large stones	1.00	Low strength	1.00	Depth to soft bedrock	0.97
		Depth to soft bedrock	0.97	Depth to hard bedrock	0.95	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
Merlin	20	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
294:							
Rubble land	35	Not rated		Not rated		Not rated	
Nuss	30	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Ateron	20	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	1.00	Slope	1.00	Slope	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Cutbanks cave	0.10
				Low strength	1.00		
295:							
Sagehen	75	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	10	Not rated		Not rated		Not rated	
296:							
Sagehen	75	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	10	Not rated		Not rated		Not rated	
297:							
Sandgap	85	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
298:							
Sandgap	85	Not limited		Not limited		Very limited Cutbanks cave	1.00
299:							
Seharney	85	Very limited Depth to hard bedrock Depth to thin cemented pan Content of large stones	1.00 1.00 0.05	Somewhat limited Depth to thin cemented pan Depth to hard bedrock Frost action Content of large stones	1.00 0.90 0.50 0.05	Very limited Depth to hard bedrock Depth to thin cemented pan Cutbanks cave Content of large stones	1.00 1.00 0.10 0.05
300:							
Skedaddle	45	Very limited Depth to hard bedrock Slope Content of large stones Shrink-swell	1.00 1.00 0.81 0.50	Very limited Depth to hard bedrock Slope Content of large stones Shrink-swell Frost action	1.00 1.00 0.81 0.50 0.50	Very limited Depth to hard bedrock Slope Content of large stones Cutbanks cave	1.00 1.00 0.81 0.10
Atlow	30	Very limited Depth to hard bedrock Slope Shrink-swell Content of large stones	1.00 1.00 0.50 0.18	Very limited Depth to hard bedrock Slope Shrink-swell Frost action Content of large stones	1.00 1.00 0.50 0.50 0.18	Very limited Depth to hard bedrock Slope Content of large stones Cutbanks cave	1.00 1.00 0.18 0.10
Rock outcrop	15	Not rated		Not rated		Not rated	
301:							
Skedaddle	45	Very limited Slope Depth to hard bedrock Content of large stones Shrink-swell	1.00 1.00 0.81 0.50	Very limited Depth to hard bedrock Slope Content of large stones Shrink-swell Frost action	1.00 1.00 0.81 0.50 0.50	Very limited Depth to hard bedrock Slope Content of large stones Cutbanks cave	1.00 1.00 0.81 0.10
Atlow	30	Very limited Slope Depth to hard bedrock Shrink-swell Content of large stones	1.00 1.00 0.50 0.18	Very limited Depth to hard bedrock Slope Shrink-swell Frost action Content of large stones	1.00 1.00 0.50 0.50 0.18	Very limited Depth to hard bedrock Slope Content of large stones Cutbanks cave	1.00 1.00 0.18 0.10
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
302:							
Skedaddle	70	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.81	Content of large stones	0.81	Content of large stones	0.81
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
Rock outcrop	15	Not rated		Not rated		Not rated	
303:							
Skedaddle, south slopes	45	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.17
		Content of large stones	0.17	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.17		
Skedaddle, north slopes	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.81	Content of large stones	0.81	Content of large stones	0.81
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
304:							
Skidoosprings	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Cutbanks cave	0.10
305:							
Skidoosprings	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Frost action	1.00	Cutbanks cave	0.10
306:							
Skunkfarm	65	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.78	Cutbanks cave	0.10
Cumulic Haploxerolls	20	Very limited		Very limited		Very limited	
		Ponding	1.00	Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.95	Frost action	0.50	Depth to saturated zone	0.95
						Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
307:							
Skunkfarm	45	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.78	Cutbanks cave	0.10
Doubleo	40	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.94	Too clayey	0.50
						Cutbanks cave	0.10
308:							
Skunkfarm	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.78	Cutbanks cave	0.10
Mcbain	30	Somewhat limited		Somewhat limited		Somewhat limited	
		Depth to saturated zone	0.73	Shrink-swell	0.50	Depth to saturated zone	0.73
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
Doubleo	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.94	Too clayey	0.50
						Cutbanks cave	0.10
309:							
Skunkfarm	60	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Frost action	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Depth to saturated zone	0.78	Cutbanks cave	0.10
Skidoosprings	25	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
				Ponding	1.00	Cutbanks cave	0.10
310:							
Spangenburg	85	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
311:							
Spangenburg	85	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
312:							
Spangenburg	85	Not limited		Very limited		Somewhat limited	
				Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
313:							
Srednic	60	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.46	Depth to hard bedrock	1.00
		Depth to thin cemented pan	0.84	Slope	0.37	Cutbanks cave	1.00
		Slope	0.37			Depth to thin cemented pan	0.84
						Slope	0.37
Aval	30	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
314:							
Stampede	85	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Cutbanks cave	1.00
		Depth to thin cemented pan	0.95	Shrink-swell	1.00	Depth to thin cemented pan	0.95
				Frost action	0.50		
315:							
Swaler	85	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00	Too clayey	0.03
				Frost action	0.50		
316:							
Swaler	70	Somewhat limited		Very limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00	Too clayey	0.03
				Frost action	0.50		
Swalesilver	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Frost action	0.50	Too clayey	0.88
						Cutbanks cave	0.10
317:							
Swalesilver	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00	Ponding	1.00
				Frost action	0.50	Too clayey	0.88
						Cutbanks cave	0.10
318:							
Swalesilver	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Frost action	0.50	Too clayey	0.88
						Cutbanks cave	0.10
319:							
Swalesilver	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
				Frost action	0.50	Too clayey	0.88
						Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
320:							
Teguro	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.84	Slope	0.84	Slope	0.84
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
				Frost action	0.50		
321:							
Teguro	90	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.06	Slope	0.37	Content of large stones	0.06
				Content of large stones	0.06		
322:							
Teguro	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.03	Slope	0.37	Content of large stones	0.03
				Content of large stones	0.03		
323:							
Teguro	45	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
				Slope	0.37		
Anatone, moist	40	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Frost action	0.50	Slope	0.37
		Content of large stones	0.01	Slope	0.37	Cutbanks cave	0.10
				Content of large stones	0.01	Content of large stones	0.01
324:							
Teguro	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.06	Slope	0.37	Content of large stones	0.06
				Content of large stones	0.06		
Ateron	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Shrink-swell	1.00	Content of large stones	1.00
		Content of large stones	1.00	Content of large stones	1.00	Slope	0.37
		Slope	0.37	Low strength	1.00	Cutbanks cave	0.10
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
325:							
Thenarrows	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00
Duckclub	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Frost action	0.50	Cutbanks cave	1.00
						Depth to saturated zone	0.95
326:							
Thenarrows	50	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00
Duckclub	20	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Frost action	0.50	Cutbanks cave	1.00
						Depth to saturated zone	0.95
Dentdraw	20	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00
327:							
Thenarrows	35	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Cutbanks cave	1.00
				Ponding	1.00	Ponding	1.00
Duckclub	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.95	Frost action	0.50	Cutbanks cave	1.00
						Depth to saturated zone	0.95
Sandgap	15	Not limited		Not limited		Very limited	
						Cutbanks cave	1.00
328:							
Ticino	45	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.54	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.79	Shrink-swell	0.50	Depth to soft bedrock	0.79
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
Merlin	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Cutbanks cave	0.10
				Shrink-swell	1.00		
				Frost action	0.50		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
329:							
Ticino	60	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.54	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.79	Shrink-swell	0.50	Depth to soft bedrock	0.79
		Shrink-swell	0.50	Frost action	0.50	Slope	0.37
		Slope	0.37	Slope	0.37	Cutbanks cave	0.10
Observation	25	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Frost action	0.50	Too clayey	0.03
				Slope	0.37		
330:							
Ticino	65	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.54	Depth to hard bedrock	1.00
		Depth to soft bedrock	0.79	Shrink-swell	0.50	Depth to soft bedrock	0.79
		Shrink-swell	0.50	Frost action	0.50	Slope	0.37
		Slope	0.37	Slope	0.37	Cutbanks cave	0.10
Rock outcrop	20	Not rated		Not rated		Not rated	
331:							
Toll	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Cutbanks cave	1.00
						Slope	0.04
332:							
Toll	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Cutbanks cave	1.00
						Slope	0.04
Nevador	40	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
333:							
Torriorthents	50	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Cutbanks cave	0.10
Gumble	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Depth to soft bedrock	1.00	Shrink-swell	1.00	Slope	1.00
		Slope	1.00	Slope	1.00	Cutbanks cave	0.10
				Low strength	1.00		
334:							
Tumtum	85	Very limited		Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	1.00
		Slope	0.16	Shrink-swell	0.50	Slope	0.16
				Frost action	0.50		
				Slope	0.16		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
335:							
Tumtum	85	Very limited		Very limited		Very limited	
		Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00	Depth to thin cemented pan	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	1.00
				Shrink-swell	0.50		
				Frost action	0.50		
336:							
Turpin	85	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Frost action	0.50		
337:							
Vanwyper	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.90	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	1.00
		Content of large stones	0.36	Content of large stones	0.36	Content of large stones	0.36
Rock outcrop	20	Not rated		Not rated		Not rated	
338:							
Vergas	85	Not limited		Somewhat limited		Very limited	
				Frost action	0.50	Cutbanks cave	1.00
339:							
Vil	85	Very limited		Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	1.00
		Slope	0.37	Shrink-swell	0.50	Slope	0.37
				Frost action	0.50		
				Slope	0.37		
340:							
Vining	85	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.54	Depth to hard bedrock	1.00
		Slope	0.37	Frost action	0.50	Slope	0.37
				Slope	0.37	Cutbanks cave	0.10
341:							
Vining	55	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Slope	1.00	Depth to hard bedrock	0.54	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
Tuffo	30	Very limited		Very limited		Very limited	
		Depth to soft bedrock	1.00	Depth to soft bedrock	1.00	Depth to soft bedrock	1.00
		Slope	1.00	Slope	1.00	Slope	1.00
						Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
342:							
Vitale	85	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Slope	0.84	Depth to hard bedrock	1.00
		Slope	0.84	Depth to hard bedrock	0.79	Slope	0.84
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.25
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.25		
343:							
Vitale	50	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Content of large stones	0.20
		Content of large stones	0.20	Slope	0.37	Cutbanks cave	0.10
				Content of large stones	0.20		
Merlin	35	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
344:							
Vitale	35	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Cutbanks cave	0.10
		Content of large stones	0.04	Slope	0.37	Content of large stones	0.04
				Content of large stones	0.04		
Merlin	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Shrink-swell	1.00	Cutbanks cave	0.10
		Content of large stones	0.01	Frost action	0.50	Content of large stones	0.01
				Slope	0.37		
Doyn	20	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Slope	0.37	Slope	0.37	Slope	0.37
						Cutbanks cave	0.10
345:							
Vitale	60	Very limited		Somewhat limited		Very limited	
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Depth to hard bedrock	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Slope	0.37
		Slope	0.37	Frost action	0.50	Content of large stones	0.20
		Content of large stones	0.20	Slope	0.37	Cutbanks cave	0.10
				Content of large stones	0.20		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
345:							
Observation---------	30	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.37
		Slope	0.37	Depth to hard bedrock	0.95	Cutbanks cave	0.10
				Frost action	0.50	Too clayey	0.03
				Slope	0.37		
346:							
Vitale--------------	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Depth to hard bedrock	0.79	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Content of large stones	0.25
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	0.10
				Content of large stones	0.25		
Rock outcrop--------	20	Not rated		Not rated		Not rated	
347:							
Voltage-------------	85	Not limited		Somewhat limited		Somewhat limited	
				Frost action	0.50	Cutbanks cave	0.10
348:							
Voltage-------------	60	Not limited		Somewhat limited		Somewhat limited	
				Frost action	0.50	Cutbanks cave	0.10
Crowcamp------------	25	Very limited		Very limited		Very limited	
		Ponding	1.00	Low strength	1.00	Cutbanks cave	1.00
		Depth to saturated zone	0.95	Shrink-swell	1.00	Ponding	1.00
				Ponding	1.00	Depth to saturated zone	0.95
				Frost action	0.50	Too clayey	0.28
349:							
Voltage-------------	45	Not limited		Somewhat limited		Somewhat limited	
				Frost action	0.50	Cutbanks cave	0.10
Crowcamp------------	40	Somewhat limited		Very limited		Very limited	
		Depth to saturated zone	0.95	Low strength	1.00	Cutbanks cave	1.00
				Shrink-swell	1.00	Depth to saturated zone	0.95
				Frost action	0.50	Too clayey	0.28
350:							
Voltage-------------	65	Not limited		Somewhat limited		Somewhat limited	
				Frost action	0.50	Cutbanks cave	0.10
Widowspring---------	20	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.61	Frost action	1.00	Depth to saturated zone	0.61
				Low strength	1.00	Cutbanks cave	0.10
351:							
Wagontire-----------	85	Very limited		Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	1.00
		Slope	0.37	Shrink-swell	0.50	Slope	0.37
				Frost action	0.50		
				Slope	0.37		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
352:							
Wagontire	55	Very limited		Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Shrink-swell	0.50	Low strength	1.00	Cutbanks cave	1.00
		Slope	0.37	Shrink-swell	0.50	Slope	0.37
				Frost action	0.50		
				Slope	0.37		
Vil	30	Very limited		Very limited		Very limited	
		Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00	Depth to thick cemented pan	1.00
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	1.00
		Slope	0.37	Shrink-swell	0.50	Slope	0.37
				Frost action	0.50		
				Slope	0.37		
353:							
Waspo	45	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Low strength	1.00	Too clayey	1.00
		Depth to soft bedrock	0.84	Shrink-swell	1.00	Cutbanks cave	1.00
				Frost action	0.50	Depth to soft bedrock	0.84
Poall	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Shrink-swell	0.50	Low strength	0.78	Cutbanks cave	0.10
				Shrink-swell	0.50		
354:							
Water	100	Not rated		Not rated		Not rated	
355:							
Welch	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Low strength	0.22		
356:							
Welch	85	Very limited		Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Frost action	1.00	Ponding	1.00
		Shrink-swell	0.50	Ponding	1.00	Cutbanks cave	0.10
				Shrink-swell	0.50		
				Low strength	0.22		
357:							
Welch	40	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Frost action	1.00	Flooding	0.80
		Shrink-swell	0.50	Flooding	1.00	Cutbanks cave	0.10
Roschene	25	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.61
		Depth to saturated zone	0.61	Shrink-swell	0.50	Flooding	0.60
		Shrink-swell	0.50	Frost action	0.50	Cutbanks cave	0.10
				Low strength	0.22		

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
357:							
Cumulic Haploxerolls	20	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.95
		Depth to saturated zone	0.95	Frost action	0.50	Flooding	0.80
						Cutbanks cave	0.10
358:							
Wenas	50	Very limited		Very limited		Very limited	
		Flooding	1.00	Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Frost action	1.00	Cutbanks cave	1.00
				Flooding	1.00	Flooding	0.80
Loupence	25	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Frost action	1.00	Flooding	0.60
		Depth to saturated zone	0.47	Flooding	1.00	Depth to saturated zone	0.47
				Low strength	0.22	Cutbanks cave	0.10
Cumulic Haploxerolls	15	Very limited		Very limited		Somewhat limited	
		Flooding	1.00	Flooding	1.00	Depth to saturated zone	0.95
		Depth to saturated zone	0.95	Frost action	0.50	Flooding	0.80
						Cutbanks cave	0.10
359:							
Westbutte	85	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
360:							
Westbutte	85	Very limited		Very limited		Very limited	
		Depth to hard bedrock	1.00	Content of large stones	1.00	Depth to hard bedrock	1.00
		Content of large stones	1.00	Slope	1.00	Content of large stones	1.00
		Slope	1.00	Depth to hard bedrock	0.90	Slope	1.00
				Frost action	0.50	Cutbanks cave	0.10
361:							
Westbutte	45	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Bocker	40	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.93	Content of large stones	0.93	Content of large stones	0.93
				Frost action	0.50	Cutbanks cave	0.10

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
362:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Lambring	25	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.20	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.20	Content of large stones	0.20
Rock outcrop	20	Not rated		Not rated		Not rated	
363:							
Westbutte	75	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	15	Not rated		Not rated		Not rated	
364:							
Westbutte	65	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	20	Not rated		Not rated		Not rated	
365:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	0.96	Slope	1.00
		Content of large stones	0.96	Depth to hard bedrock	0.90	Content of large stones	0.96
				Frost action	0.50	Cutbanks cave	0.10
Lambring	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.25	Content of large stones	0.25
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
366:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	0.96	Slope	1.00
		Content of large stones	0.96	Depth to hard bedrock	0.90	Content of large stones	0.96
				Frost action	0.50	Cutbanks cave	0.10
Lambring	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.25	Content of large stones	0.25
Rock outcrop	15	Not rated		Not rated		Not rated	
367:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Lambring	30	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Slope	1.00
		Content of large stones	0.25	Frost action	0.50	Cutbanks cave	1.00
				Content of large stones	0.25	Content of large stones	0.25
Rock outcrop	15	Not rated		Not rated		Not rated	
368:							
Westbutte	50	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Observation	40	Very limited		Very limited		Very limited	
		Shrink-swell	1.00	Shrink-swell	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Low strength	1.00	Slope	0.84
		Slope	0.84	Depth to hard bedrock	0.95	Cutbanks cave	0.10
		Content of large stones	0.01	Slope	0.84	Too clayey	0.03
				Frost action	0.50	Content of large stones	0.01
369:							
Westbutte	35	Very limited		Very limited		Very limited	
		Slope	1.00	Slope	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Content of large stones	1.00	Slope	1.00
		Content of large stones	1.00	Depth to hard bedrock	0.90	Content of large stones	1.00
				Frost action	0.50	Cutbanks cave	0.10
Rock outcrop	30	Not rated		Not rated		Not rated	

Table 10.--Building Site Development--Continued

Map symbol and soil name	Pct. of map unit	Dwellings with basements		Local roads and street		Shallow excavations	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
369:							
Pernty	25	Very limited		Very limited		Very limited	
		Slope	1.00	Depth to hard bedrock	1.00	Depth to hard bedrock	1.00
		Depth to hard bedrock	1.00	Slope	1.00	Slope	1.00
		Shrink-swell	0.50	Shrink-swell	0.50	Cutbanks cave	0.10
		Content of large stones	0.08	Frost action	0.50	Content of large stones	0.08
				Content of large stones	0.08		
370:							
Widowspring	85	Somewhat limited		Very limited		Somewhat limited	
		Depth to saturated zone	0.61	Frost action	1.00	Depth to saturated zone	0.61
				Low strength	1.00	Cutbanks cave	0.10
371:							
Windybutte	85	Not limited		Not limited		Somewhat limited	
						Cutbanks cave	0.10
372:							
Wolverine	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.04	Slope	0.04	Cutbanks cave	1.00
						Slope	0.04
373:							
Denied access	100	Not rated		Not rated		Not rated	

Table 11.--Sanitary Facilities

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
1:					
Actem	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
2:					
Actem	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.04	Slope	0.04
3:					
Actem	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
Robson	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
		Content of large stones	0.03	Content of large stones	0.03
4:					
Alvodest	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
5:					
Alvodest	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
Playas	35	Very limited		Not rated	
		Restricted permeability	1.00		
		Depth to saturated zone	1.00		
		Ponding	1.00		
6:					
Alyan	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.04
		Slope	0.04		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
7:					
Anatone	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.47	Content of large stones	0.47
8:					
Anatone, moist	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.02	Content of large stones	0.02
Anatone	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.06	Content of large stones	0.06
9:					
Anatone	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
		Content of large stones	0.02	Content of large stones	0.02
Teguro	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
Observation	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
10:					
Anatone, moist	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.12	Content of large stones	0.12
Egyptcreek	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Rock outcrop	15	Not rated		Not rated	
11:					
Anatone, moist	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.12	Content of large stones	0.12
Minam	20	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
Rock outcrop	15	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
12:					
Anatone	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.47	Content of large stones	0.47
Teguro	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
Rock outcrop	20	Not rated		Not rated	
13:					
Anatone	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.12	Content of large stones	0.12
Westbutte	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.96	Content of large stones	0.96
		Restricted permeability	0.46		
Rock outcrop	15	Not rated		Not rated	
14:					
Anawalt	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
15:					
Anawalt	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
Lonely	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
16:					
Anawalt	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
Oreneva	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
17:					
Anawalt	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
Raz	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
18:					
Ateron	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.37	Content of large stones	1.00
				Slope	0.37
19:					
Ateron	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.37	Content of large stones	1.00
				Slope	0.37
Rubble land	35	Not rated		Not rated	
20:					
Ateron	60	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
				Content of large stones	1.00
Observation	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Too clayey	0.50
		Content of large stones	0.01	Slope	0.16
				Content of large stones	0.01
21:					
Atlow	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.18	Content of large stones	0.18
22:					
Atlow	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.18	Content of large stones	0.18
Rock outcrop	15	Not rated		Not rated	
23:					
Atlow	70	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.18	Content of large stones	0.18
Rock outcrop	15	Not rated		Not rated	
24:					
Atlow	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.18	Content of large stones	0.18

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
24:					
Skedaddle	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.96	Content of large stones	0.96
25:					
Ausmus	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Salinity	1.00
		Restricted permeability	0.46	Ponding	1.00
26:					
Ausmus	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46	Salinity	1.00
27:					
Baconcamp	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
28:					
Baconcamp	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
		Restricted permeability	0.46		
Clamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
		Content of large stones	0.80	Content of large stones	0.80
				Too clayey	0.50
29:					
Baconcamp	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Clamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.80	Content of large stones	0.80
				Too clayey	0.50
30:					
Baconcamp	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
30:					
Clamp	25	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.93	Content of large stones	0.93
				Too clayey	0.50
Rock outcrop	20	Not rated		Not rated	
31:					
Baconcamp	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46	Slope	0.04
		Slope	0.04		
Rock outcrop	15	Not rated		Not rated	
32:					
Baconcamp	70	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Rock outcrop	15	Not rated		Not rated	
33:					
Baconcamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Rock outcrop	30	Not rated		Not rated	
Hackwood	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
34:					
Baconcamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Hapgood	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Content of large stones	0.59	Seepage	1.00
				Content of large stones	0.65
Rock outcrop	15	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
35:					
Baconcamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Krackle	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Too clayey	0.50
Rock outcrop	15	Not rated		Not rated	
36:					
Berdugo	85	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Restricted permeability	0.46		
37:					
Berdugo	50	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Restricted permeability	0.46		
Catlow	35	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Restricted permeability	1.00		
38:					
Bigfrog	45	Very limited		Very limited	
		Depth to cemented pan	1.00	Slope	1.00
		Slope	1.00	Depth to thin cemented pan	0.50
Brock	40	Very limited		Very limited	
		Depth to cemented pan	1.00	Slope	1.00
		Slope	1.00	Depth to thin cemented pan	0.50
39:					
Bocker	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.93	Content of large stones	0.93
Westbutte	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
40:					
Boravall	55	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Sodium content	1.00
		Ponding	1.00	Salinity	1.00
				Ponding	1.00
				Too clayey	0.50
Playas	30	Very limited		Not rated	
		Restricted permeability	1.00		
		Depth to saturated zone	1.00		
		Ponding	1.00		
41:					
Borobey	85	Very limited		Very limited	
		Restricted permeability	1.00	Seepage	1.00
				Too sandy	0.50
		Slope	0.04	Slope	0.04
42:					
Boulder Lake	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00
43:					
Boulder Lake	65	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00
Merlin	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00
44:					
Boulder Lake	45	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	1.00
		Ponding	1.00	Ponding	1.00
Spangenburg	40	Very limited		Not limited	
		Restricted permeability	1.00		
45:					
Brabble	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Slope	1.00
				Depth to thin cemented pan	0.50
		Restricted permeability	1.00		
		Slope	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
45:					
Calderwood	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.13	Content of large stones	0.13
46:					
Brace	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
Coztur	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
		Content of large stones	0.01	Content of large stones	0.01
Rock outcrop	15	Not rated		Not rated	
47:					
Brace	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
Vergas	40	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
48:					
Bruncan, thick surface	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
Bruncan, thin surface	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
49:					
Brunzell	90	Very limited		Very limited	
		Filtering capacity	1.00	Seepage	1.00
				Too sandy	0.50
		Restricted permeability	1.00	Content of large stones	0.01
50:					
Bucklake	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
51:					
Bucklake	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00		
Mahoon	35	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00		
Rubble land	20	Not rated		Not rated	
52:					
Calderwood	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.13	Content of large stones	0.13
53:					
Calderwood	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.23	Content of large stones	0.23
McConnel	20	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Slope	0.16	Slope	0.16
54:					
Carryback	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	0.37	Slope	0.37
55:					
Carryback	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	0.84	Slope	0.84
56:					
Carryback	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	0.37	Slope	0.37
57:					
Carryback	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	0.63	Slope	0.63

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
58:					
Carryback, thin surface	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Too clayey	1.00
		Depth to bedrock	1.00	Slope	0.37
		Slope	0.37		
Carryback, thick surface	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Too clayey	1.00
		Depth to bedrock	1.00	Slope	0.37
		Slope	0.37		
59:					
Carryback, thin surface	35	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	1.00		
Carryback, south slopes	30	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	1.00		
Carryback, north slopes	25	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	1.00		
60:					
Carryback, south slopes	45	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	1.00		
Carryback, north slopes	40	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	1.00		
61:					
Carryback	55	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Too clayey	1.00
		Depth to bedrock	1.00	Content of large stones	0.06
		Content of large stones	0.06	Slope	0.04
		Slope	0.04		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
61:					
Pearlwise	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	0.50
				Slope	0.04
62:					
Carryback	45	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	1.00	Content of large stones	0.06
		Content of large stones	0.06		
Pearlwise	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
Rock outcrop	15	Not rated		Not rated	
63:					
Carryback	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Too clayey	1.00
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00		
Dickle	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
				Too clayey	0.50
64:					
Carvix	85	Somewhat limited		Not limited	
		Restricted permeability	0.46		
65:					
Clamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.80	Content of large stones	0.80
				Too clayey	0.50
Baconcamp	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Hackwood	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
66:					
Coztur	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
67:					
Crowcamp	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
68:					
Crowcamp	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
Ausmus	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Salinity	1.00
		Restricted permeability	0.46	Ponding	1.00
Poujade	15	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
69:					
Davey	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
70:					
Davey	45	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
Oreanna	40	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
71:					
Defenbaugh	85	Very limited		Not limited	
		Restricted permeability	1.00		
72:					
Deppy	85	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.16	Slope	0.16
73:					
Deppy	45	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.16	Slope	0.16
Tumtum	40	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.16	Slope	0.16

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
74:					
Dickle	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	0.50
75:					
Dixon	85	Very limited		Not limited	
		Filtering capacity	1.00		
		Restricted permeability	0.72		
76:					
Dixon	85	Very limited		Not limited	
		Filtering capacity	1.00		
		Restricted permeability	0.72		
77:					
Dixon	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Slope	0.04
		Restricted permeability	0.72		
		Slope	0.04		
78:					
Dixon	50	Very limited		Not limited	
		Filtering capacity	1.00		
		Restricted permeability	0.72		
Droval	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
79:					
Dogmountain	85	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Slope	0.63
		Slope	0.63	Depth to thin cemented pan	0.50
80:					
Doyn	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
81:					
Doyn	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
Merlin	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
82:					
Doyn	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
Arcia	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00
83:					
Drewsey	85	Somewhat limited		Not limited	
		Restricted permeability	0.46		
84:					
Drewsey	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Slope	0.37
		Slope	0.37		
85:					
Drewsey	35	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Slope	0.37
		Slope	0.37		
Torriorthents	30	Not rated		Not rated	
Gumble	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
86:					
Droval	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
87:					
Duff	85	Somewhat limited		Very limited	
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Restricted permeability	0.46		
88:					
Duff	45	Somewhat limited		Very limited	
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
		Restricted permeability	0.46		
Clamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
		Content of large stones	0.40	Too clayey	0.50
				Content of large stones	0.40

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
89:					
Duff	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Restricted permeability	0.46		
Clamp	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.40	Too clayey	0.50
				Content of large stones	0.40
90:					
Duff	60	Somewhat limited		Very limited	
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Restricted permeability	0.46		
Hackwood	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
91:					
Edemaps	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Too clayey	1.00
				Slope	0.84
		Restricted permeability	1.00	Depth to thin cemented pan	0.50
		Slope	0.84		
92:					
Edemaps	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Too clayey	1.00
				Depth to thin cemented pan	0.50
		Restricted permeability	1.00		
Carryback	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Too clayey	1.00
		Depth to bedrock	1.00		
93:					
Enko	85	Very limited		Not limited	
		Restricted permeability	1.00		
94:					
Enko	50	Very limited		Not limited	
		Restricted permeability	1.00		
Catlow	35	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Restricted permeability	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
95:					
Enko	50	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.37
		Slope	0.37		
Catlow	35	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Restricted permeability	1.00	Slope	0.37
		Slope	0.37		
96:					
Enko	50	Very limited		Not limited	
		Restricted permeability	1.00		
Catlow	35	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Restricted permeability	1.00	Content of large stones	0.98
		Content of large stones	0.90	Slope	0.84
		Slope	0.84		
97:					
Erakatak	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	1.00
		Content of large stones	0.48	Content of large stones	0.48
98:					
Erakatak	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	1.00
		Content of large stones	0.02	Content of large stones	0.02
Lambring	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.17
		Content of large stones	0.01		
Rock outcrop	10	Not rated		Not rated	
99:					
Erakatak	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	1.00
		Content of large stones	0.02	Content of large stones	0.02

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
99:					
Merlin	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
		Content of large stones	0.01	Slope	1.00
				Content of large stones	0.01
Westbutte	25	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
100:					
Erakatak	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	1.00
		Content of large stones	0.19	Content of large stones	0.19
Rock outcrop	20	Not rated		Not rated	
101:					
Erakatak	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	1.00
		Content of large stones	0.19	Content of large stones	0.19
Ninemile	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00
Hapgood	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Content of large stones	0.95	Seepage	1.00
				Content of large stones	0.96
102:					
Felcher	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
103:					
Felcher	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.85	Content of large stones	0.85
Rock outcrop	20	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
104:					
Felcher	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
Rock outcrop	30	Not rated		Not rated	
Brezniak	25	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
105:					
Felcher	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.57	Content of large stones	0.57
Rock outcrop	30	Not rated		Not rated	
Westbutte	25	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
106:					
Felcher	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.85	Content of large stones	0.85
Sagehen	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
107:					
Felcher	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.85	Content of large stones	0.85
Sagehen	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.07	Content of large stones	0.07
108:					
Felcher	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.57	Content of large stones	0.57

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
108:					
Fitzwater	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Content of large stones	1.00	Depth to bedrock	1.00
		Depth to bedrock	0.36	Content of large stones	1.00
Rock outcrop	15	Not rated		Not rated	
109:					
Felcher	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.85	Content of large stones	0.85
Pernty	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.26	Content of large stones	0.26
Ninemile	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00
110:					
Felcher	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.85	Content of large stones	0.85
Westbutte	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
111:					
Final	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
112:					
Fitzwater	45	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Content of large stones	1.00	Depth to bedrock	1.00
		Depth to bedrock	0.36	Content of large stones	1.00
Hapgood, thick surface	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Content of large stones	0.59	Seepage	1.00
				Content of large stones	0.65

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
112:					
Hapgood, thin surface	15	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Content of large stones	0.89	Seepage	1.00
				Content of large stones	0.90
113:					
Fitzwater	60	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Content of large stones	1.00	Depth to bedrock	1.00
		Depth to bedrock	0.36	Content of large stones	1.00
Rock outcrop	25	Not rated		Not rated	
114:					
Flank	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too sandy	0.50
Lava flows	35	Not rated		Not rated	
115:					
Fourwheel	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
116:					
Fourwheel	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
117:					
Freznik	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.04
		Slope	0.04		
118:					
Fury	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50
119:					
Fury	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50
120:					
Fury	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
120:					
Degarmo	30	Very limited Depth to saturated zone Restricted permeability	 1.00 1.00	Very limited Depth to saturated zone	 1.00
121:					
Fury	50	Very limited Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	 1.00 1.00 0.50
Housefield	35	Very limited Restricted permeability Depth to saturated zone Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00
122:					
Fury	40	Very limited Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	 1.00 1.00 0.50
Housefield	30	Very limited Restricted permeability Depth to saturated zone Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Content of organic matter Ponding	 1.00 1.00 1.00
Skidoosprings	15	Very limited Depth to saturated zone Ponding Depth to cemented pan	 1.00 1.00 1.00	Very limited Depth to saturated zone Sodium content Seepage Ponding Depth to thin cemented pan	 1.00 1.00 1.00 1.00 0.50
123:					
Fury	55	Very limited Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding Too clayey	 1.00 1.00 0.50
Opie	30	Very limited Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Salinity Ponding	 1.00 1.00 1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
124:					
Fury	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50
Skidoosprings	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Sodium content	1.00
		Depth to cemented pan	1.00	Seepage	1.00
				Ponding	1.00
				Depth to thin cemented pan	0.50
Opie	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
125:					
Fury	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50
Widowspring	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72		
126:					
Gaib	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
127:					
Gaib	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	0.50
				Slope	0.04
Ateron	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.04	Content of large stones	1.00
				Slope	0.04
128:					
Gaib	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
Rock outcrop	20	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
129:					
Gilispie	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	0.50
				Slope	0.04
Noname	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	0.50
				Slope	0.04
130:					
Gochea	85	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
131:					
Goldrun	55	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	1.00		
Alvodest	30	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
132:					
Gradon	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Seepage	1.00
		Restricted permeability	1.00	Depth to thin cemented pan	0.50
				Too clayey	0.50
133:					
Guano	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04
134:					
Gumble	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
135:					
Gumble	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
136:					
Gumble	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
Mahoon	30	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
136:					
Cagle	25	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00		
137:					
Hackwood	85	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
138:					
Hackwood	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
Baconcamp	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
139:					
Hapgood	85	Somewhat limited		Very limited	
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Content of large stones	0.95	Seepage	1.00
				Content of large stones	0.96
140:					
Hart Camp	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.20	Content of large stones	0.20
		Slope	0.16	Slope	0.16
141:					
Hart Camp	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.20	Content of large stones	0.20
142:					
Helphenstein	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		
Goldrun	35	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	1.00	Slope	0.04
		Slope	0.04		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
143:					
Homefield	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Content of organic matter	1.00
		Ponding	1.00	Sodium content	1.00
				Ponding	1.00
144:					
Housefield	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Content of organic matter	1.00
		Ponding	1.00	Ponding	1.00
145:					
Housefield	45	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Content of organic matter	1.00
		Ponding	1.00	Ponding	1.00
Doubleo	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
146:					
Icene	60	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
Playas	25	Very limited		Not rated	
		Restricted permeability	1.00		
		Depth to saturated zone	1.00		
		Ponding	1.00		
147:					
Icene	60	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
Playas	25	Very limited		Not rated	
		Restricted permeability	1.00		
		Depth to saturated zone	1.00		
		Ponding	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
148:					
Jesse Camp	85	Very limited		Not limited	
		Restricted permeability	1.00		
149:					
Jimgreen	90	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Content of organic matter	1.00
		Restricted permeability	0.46	Ponding	1.00
150:					
Jimgreen	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Content of organic matter	1.00
		Restricted permeability	0.46	Ponding	1.00
Housefield	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Content of organic matter	1.00
		Ponding	1.00	Ponding	1.00
151:					
Kegler	85	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Restricted permeability	0.46		
152:					
Kerrfield	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Filtering capacity	1.00	Slope	0.63
		Slope	0.63		
153:					
Klicker	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	0.97
		Content of large stones	0.97	Too clayey	0.50
154:					
Klicker	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Too clayey	0.50

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
155:					
Krackle, north slopes	55	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Too clayey	0.50
Krackle, south slopes	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Too clayey	0.50
156:					
Krackle	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.50
Baconcamp	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
Rock outcrop	15	Not rated		Not rated	
157:					
Krackle	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Slope	1.00
		Slope	1.00	Too clayey	0.50
Baconcamp	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
Rock outcrop	15	Not rated		Not rated	
158:					
Krackle	70	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Too clayey	0.50
Rock outcrop	15	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
159:					
Krackle	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	1.00
		Content of large stones	1.00	Too clayey	0.50
Baconcamp	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Hackwood	20	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
160:					
Ladycomb	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
				Too clayey	0.50
161:					
Lambranch	85	Very limited		Not limited	
		Restricted permeability	1.00		
162:					
Lambring	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.46
		Content of large stones	0.25		
Egyptcreek	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46	Content of large stones	0.07
		Content of large stones	0.07		
Rock outcrop	15	Not rated		Not rated	
163:					
Lambring, thick surface	40	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.16
		Content of large stones	0.01		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
163:					
Lambring, thin surface	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.17
		Content of large stones	0.01		
Rock outcrop	15	Not rated		Not rated	
164:					
Lambring	50	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Content of large stones	0.47	Content of large stones	0.62
		Restricted permeability	0.46		
Rubble land	35	Not rated		Not rated	
165:					
Langslet	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00		
166:					
Lava flows	85	Not rated		Not rated	
167:					
Lava flows	55	Not rated		Not rated	
Flank	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
168:					
Lawen	85	Very limited		Not limited	
		Restricted permeability	1.00		
169:					
Leathers	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	1.00		
170:					
Leathers	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	1.00		
171:					
Leemorris	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	0.50
		Slope	0.04	Slope	0.04

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
171:					
Buckwilder	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Too clayey	1.00
		Slope	0.04	Slope	0.04
172:					
Leemorris	50	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	0.50
Buckwilder	35	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
173:					
Legler	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Flooding	0.40
		Flooding	0.40		
174:					
Locane	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.09	Content of large stones	0.09
175:					
Lolak	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Sodium content	1.00
		Ponding	1.00	Ponding	1.00
176:					
Lolak	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Sodium content	1.00
		Ponding	1.00	Ponding	1.00
Ausmus	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Salinity	1.00
		Restricted permeability	0.46	Ponding	1.00
177:					
Lonely	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
177:					
Doyn	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.96	Slope	0.96
178:					
Lonely	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
Robson	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Slope	0.16
		Content of large stones	0.07	Content of large stones	0.07
179:					
Longcreek	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.37	Too clayey	1.00
				Content of large stones	0.37
Cleavage	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
180:					
Longcreek	75	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.37	Too clayey	1.00
				Content of large stones	0.37
Rock outcrop	10	Not rated		Not rated	
181:					
Loupence	85	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
182:					
Madeline	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
183:					
Madeline	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
184:					
Madeline	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
Ninemile	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	1.00
185:					
Madeline	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
Rock outcrop	20	Not rated		Not rated	
186:					
Mahoon	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Slope	0.37
		Depth to bedrock	1.00		
		Slope	0.37		
187:					
Mahoon	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Slope	0.37
		Depth to bedrock	1.00		
		Slope	0.37		
Brezniak	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
Longcreek	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
188:					
Mahoon	65	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Slope	1.00
		Depth to bedrock	1.00		
		Slope	1.00		
Cagle	20	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
				Depth to bedrock	1.00
		Depth to bedrock	1.00		
		Slope	1.00		
189:					
Mahoon	50	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Slope	0.37
		Depth to bedrock	1.00		
		Slope	0.37		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
189:					
Risley	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.37
		Slope	0.37		
190:					
Mahoon	50	Very limited		Very limited	
		Restricted permeability	1.00	Slope	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00		
Cotant	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
191:					
Mcbain	45	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Salinity	1.00
Ausmus	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Salinity	1.00
		Restricted permeability	0.46	Ponding	1.00
192:					
McConnel	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
193:					
Merlin	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	1.00
		Content of large stones	0.01	Slope	0.04
				Content of large stones	0.01
194:					
Merlin, very stony	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Merlin, very cobbly	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
195:					
Merlin	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Ateron	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.37	Content of large stones	1.00
				Slope	0.37
196:					
Merlin	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Ateron	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.37	Content of large stones	1.00
				Slope	0.37
Rubble land	15	Not rated		Not rated	
197:					
Merlin	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Ateron	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.37	Content of large stones	1.00
				Slope	0.37
Ticino	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46	Slope	0.37
		Slope	0.37		
198:					
Merlin	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
198:					
Erakatak	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	1.00
		Slope	0.37	Slope	0.37
		Content of large stones	0.02	Content of large stones	0.02
Teguro	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
199:					
Merlin	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Observation	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
200:					
Merlin	60	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.01	Too clayey	1.00
				Content of large stones	0.01
Observation	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.01	Too clayey	0.50
				Content of large stones	0.01
201:					
Merlin	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	1.00
		Content of large stones	0.01	Slope	0.04
				Content of large stones	0.01
Rubble land	15	Not rated		Not rated	
202:					
Merlin	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	1.00
				Slope	0.04
Teguro	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	0.50
				Slope	0.04

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
203:					
Merlin	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Teguro	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
		Content of large stones	0.03	Slope	0.37
				Content of large stones	0.03
204:					
Mesman	85	Very limited		Very limited	
		Restricted permeability	1.00	Salinity	1.00
205:					
Mesman	85	Very limited		Very limited	
		Restricted permeability	1.00	Salinity	1.00
206:					
Mesman	45	Very limited		Very limited	
		Restricted permeability	1.00	Salinity	1.00
Norad	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.40		
207:					
Middlebox	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
208:					
Middlebox, north slopes	60	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Middlebox, south slopes	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
209:					
Minam	85	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00
210:					
Minam	60	Somewhat limited		Very limited	
		Restricted permeability	0.46	Seepage	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
210:					
Welch	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
211:					
Modoc	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Seepage	1.00
		Restricted permeability	1.00	Depth to thin cemented pan	0.50
		Slope	0.04	Slope	0.04
212:					
Morfitt	85	Very limited		Very limited	
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
213:					
Morganhills	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
214:					
Morganhills, more than 12 percent slopes	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
Morganhills, less than 12 percent slopes	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
215:					
Mound	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
				Too clayey	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Depth to bedrock	0.63	Slope	0.37
		Slope	0.37		
216:					
Nevador	85	Very limited		Not limited	
		Restricted permeability	1.00		
217:					
Ninemile	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00
218:					
Ninemile	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
219:					
Ninemile	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.16	Too clayey	1.00
				Slope	0.16
220:					
Ninemile	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00
Carvix	30	Somewhat limited		Not limited	
		Restricted permeability	0.46		
221:					
Ninemile	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
				Slope	0.37
Doyn	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
222:					
Ninemile	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00
Edemaps	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Too clayey	1.00
		Restricted permeability	1.00	Depth to thin cemented pan	0.50
223:					
Ninemile	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	1.00
				Slope	0.04
Madeline	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	0.50
				Slope	0.04
224:					
Ninemile	60	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	1.00
Pearlwise	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
225:					
Ninemile	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
225:					
Reluctan	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00		
226:					
Ninemile	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00
Reluctan	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Slope	1.00
		Slope	1.00		
Rubble land	15	Not rated		Not rated	
227:					
Ninemile	70	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	1.00
Rock outcrop	15	Not rated		Not rated	
228:					
Ninemile	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Too clayey	1.00
				Slope	0.84
Rubble land	20	Not rated		Not rated	
229:					
Ninemile	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Too clayey	1.00
				Slope	0.04
Westbutte	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46	Slope	0.04
		Slope	0.04		
230:					
Ninemile, very cobbly	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00
Westbutte	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
230:					
Ninemile, extremely stony	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
		Content of large stones	0.01	Slope	1.00
				Content of large stones	0.01
231:					
Ninemile, very cobbly	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00
Ninemile, extremely stony	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.01	Too clayey	1.00
				Content of large stones	0.01
232:					
Ninemile	70	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Too clayey	1.00
				Slope	0.84
Felcher	20	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.28	Content of large stones	0.28
233:					
Noname	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	0.50
Dickle	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	0.50
234:					
Noname	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
Duff	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Depth to bedrock	0.98	Depth to bedrock	1.00
		Restricted permeability	0.46		
Rock outcrop	20	Not rated		Not rated	
235:					
Norad	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.40		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
236:					
Norad	45	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	0.40		
Spangenburg	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.40		
237:					
Nuss	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
238:					
Nuss	60	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Merlin	25	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.01	Too clayey	1.00
				Content of large stones	0.01
239:					
Nuss	55	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Rock outcrop	30	Not rated		Not rated	
240:					
Observation	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
241:					
Observation	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
				Too clayey	0.50
Rock outcrop	20	Not rated		Not rated	
242:					
Observation	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
Royst	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
242:					
Merlin	15	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
243:					
Observation	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
Teguro	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
		Content of large stones	0.06	Slope	0.37
				Content of large stones	0.06
244:					
Observation	50	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.01	Too clayey	0.50
				Content of large stones	0.01
Lambring	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.46
		Content of large stones	0.25		
Rock outcrop	15	Not rated		Not rated	
245:					
Olac	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.91	Content of large stones	0.92
Atlow	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.18	Content of large stones	0.18
246:					
Opie	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
247:					
Oreneva	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
248:					
Outerkirk	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Too sandy	0.50
249:					
Outerkirk	85	Very limited		Not limited	
		Restricted permeability	1.00		
250:					
Outerkirk	55	Very limited		Somewhat limited	
		Restricted permeability	1.00	Too sandy	0.50
Defenbaugh	30	Very limited		Not limited	
		Restricted permeability	1.00		
251:					
Ozamis	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00	Too clayey	0.50
252:					
Pearlwise	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
				Too clayey	0.50
253:					
Pernty	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	0.08	Content of large stones	0.08
		Slope	0.04	Slope	0.04
254:					
Pernty	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.08	Content of large stones	0.08
255:					
Pernty	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.26	Content of large stones	0.26
256:					
Pernty	60	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.08	Content of large stones	0.08
Rock outcrop	25	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
257:					
Pernty	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.08	Content of large stones	0.08
Westbutte	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
Ninemile	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Too clayey	1.00
				Slope	1.00
258:					
Pits	100	Not rated		Not rated	
259:					
Playas	95	Very limited		Not rated	
		Restricted permeability	1.00		
		Depth to saturated zone	1.00		
		Ponding	1.00		
260:					
Playas	60	Very limited		Not rated	
		Restricted permeability	1.00		
		Depth to saturated zone	1.00		
		Ponding	1.00		
Thenarrows	25	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
				Sodium content	1.00
		Ponding	1.00	Ponding	1.00
261:					
Poall	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Slope	0.37
		Slope	0.37		
262:					
Poall	50	Very limited		Not limited	
		Restricted permeability	1.00		
Gumble	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
263:					
Pomerening	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Slope	0.37	Slope	0.37
264:					
Pomerening	40	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Slope	0.37	Slope	0.37
Flank	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
Lava flows	20	Not rated		Not rated	
265:					
Porterfield	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
266:					
Porterfield	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
267:					
Porterfield	50	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Tincan	20	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Rock outcrop	15	Not rated		Not rated	
268:					
Poujade	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
269:					
Poujade	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
270:					
Poujade	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
270:					
Ausmus	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Salinity	1.00
		Restricted permeability	0.46	Ponding	1.00
271:					
Raz	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
272:					
Raz	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
Brace	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
273:					
Raz	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
Brace	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
274:					
Reallis	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Too sandy	0.50
275:					
Reallis	85	Very limited		Somewhat limited	
		Restricted permeability	1.00	Too sandy	0.50
276:					
Reese	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Sodium content	1.00
		Ponding	1.00	Salinity	1.00
				Ponding	1.00
				Too clayey	0.50

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
277:					
Reluctan	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Slope	0.37
		Slope	0.37		
278:					
Reluctan	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Slope	0.37
		Slope	0.37		
279:					
Riddleranch	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Lambring	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.46
		Content of large stones	0.25		
Rock outcrop	15	Not rated		Not rated	
280:					
Riddleranch	50	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Rock outcrop	35	Not rated		Not rated	
281:					
Rinconflat	85	Somewhat limited		Somewhat limited	
		Restricted permeability	0.46	Content of large stones	0.09
		Content of large stones	0.05		
282:					
Rio King	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46		
283:					
Rio King	55	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
283:					
Droval	35	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Salinity	1.00
		Ponding	1.00	Ponding	1.00
284:					
Risley	45	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.37
		Slope	0.37		
Gumble	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
285:					
Risley	40	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.96
		Slope	0.96		
Gumble	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.96	Slope	0.96
Torriorthents	20	Not rated		Not rated	
286:					
Risley	60	Very limited		Very limited	
		Restricted permeability	1.00	Depth to bedrock	1.00
		Depth to bedrock	1.00	Slope	0.84
		Slope	0.84		
Rock outcrop	25	Not rated		Not rated	
287:					
Robson	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04
		Content of large stones	0.01	Content of large stones	0.01
Anawalt	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.04	Slope	0.04
288:					
Robson	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.07	Content of large stones	0.07
Fourwheel	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
289:					
Robson	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.96	Slope	0.96
		Content of large stones	0.07	Content of large stones	0.07
Felcher	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.57	Content of large stones	0.57
290:					
Roca	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.04	Content of large stones	0.04
291:					
Rock outcrop	60	Not rated		Not rated	
Rubble land	30	Not rated		Not rated	
292:					
Rock outcrop	50	Not rated		Not rated	
Baconcamp	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
293:					
Royst	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
Merlin	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
294:					
Rubble land	35	Not rated		Not rated	
Nuss	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Ateron	20	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
				Content of large stones	1.00

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
295:					
Sagehen	75	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
Rock outcrop	10	Not rated		Not rated	
296:					
Sagehen	75	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
Rock outcrop	10	Not rated		Not rated	
297:					
Sandgap	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	0.46		
298:					
Sandgap	85	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	0.46		
299:					
Seharney	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Content of large stones	0.05	Content of large stones	0.05
300:					
Skedaddle	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.81	Content of large stones	0.81
Atlow	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
		Content of large stones	0.18	Content of large stones	0.18
Rock outcrop	15	Not rated		Not rated	
301:					
Skedaddle	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.81	Content of large stones	0.81
Atlow	30	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.18	Content of large stones	0.18

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
301:					
Rock outcrop	15	Not rated		Not rated	
302:					
Skedaddle	70	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.81	Content of large stones	0.81
Rock outcrop	15	Not rated		Not rated	
303:					
Skedaddle, south slopes	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.17	Content of large stones	0.17
Skedaddle, north slopes	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.81	Content of large stones	0.81
304:					
Skidoosprings	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Sodium content	1.00
		Depth to cemented pan	1.00	Seepage	1.00
				Ponding	1.00
				Depth to thin cemented pan	0.50
305:					
Skidoosprings	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Depth to cemented pan	1.00	Sodium content	1.00
				Seepage	1.00
				Depth to thin cemented pan	0.50
306:					
Skunkfarm	65	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Seepage	1.00
		Restricted permeability	0.46	Ponding	1.00
Cumulic Haploxerolls	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Restricted permeability	0.46		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
307:					
Skunkfarm	45	Very limited Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.46	Very limited Depth to saturated zone Seepage Ponding	 1.00 1.00 1.00
Doubleo	40	Very limited Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00
308:					
Skunkfarm	35	Very limited Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.46	Very limited Depth to saturated zone Seepage Ponding	 1.00 1.00 1.00
Mcbain	30	Very limited Depth to saturated zone Restricted permeability	 1.00 1.00	Very limited Depth to saturated zone Salinity	 1.00 1.00
Doubleo	20	Very limited Depth to saturated zone Restricted permeability Ponding	 1.00 1.00 1.00	Very limited Depth to saturated zone Ponding	 1.00 1.00
309:					
Skunkfarm	60	Very limited Depth to saturated zone Ponding Restricted permeability	 1.00 1.00 0.46	Very limited Depth to saturated zone Seepage Ponding	 1.00 1.00 1.00
Skidoosprings	25	Very limited Depth to saturated zone Ponding Depth to cemented pan	 1.00 1.00 1.00	Very limited Depth to saturated zone Sodium content Seepage Ponding Depth to thin cemented pan	 1.00 1.00 1.00 1.00 0.50
310:					
Spangenburg	85	Very limited Restricted permeability	 1.00	Not limited	
311:					
Spangenburg	85	Very limited Restricted permeability	 1.00	Not limited	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
312:					
Spangenburg	85	Very limited		Not limited	
		Restricted permeability	1.00		
313:					
Srednic	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.37	Slope	0.37
Aval	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
314:					
Stampede	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Seepage	1.00
				Too clayey	1.00
				Depth to thin cemented pan	0.50
315:					
Swaler	85	Very limited		Not limited	
		Restricted permeability	1.00		
316:					
Swaler	70	Very limited		Not limited	
		Restricted permeability	1.00		
Swalesilver	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
317:					
Swalesilver	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
318:					
Swalesilver	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
319:					
Swalesilver	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
320:					
Teguro	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
				Too clayey	0.50
321:					
Teguro	90	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
		Content of large stones	0.06	Slope	0.37
				Content of large stones	0.06
322:					
Teguro	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
		Content of large stones	0.03	Slope	0.37
				Content of large stones	0.03
323:					
Teguro	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
Anatone, moist	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
		Content of large stones	0.01	Content of large stones	0.01
324:					
Teguro	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
		Content of large stones	0.06	Slope	0.37
				Content of large stones	0.06
Ateron	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Too clayey	1.00
		Slope	0.37	Content of large stones	1.00
				Slope	0.37
325:					
Thenarrows	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
				Sodium content	1.00
		Ponding	1.00	Ponding	1.00
Duckclub	40	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
		Restricted permeability	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
326:					
Thenarrows	50	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
				Sodium content	1.00
		Ponding	1.00	Ponding	1.00
Duckclub	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
		Restricted permeability	1.00		
Dentdraw	20	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
				Sodium content	1.00
		Restricted permeability	1.00	Ponding	1.00
				Too sandy	0.50
		Ponding	1.00		
327:					
Thenarrows	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
				Sodium content	1.00
		Ponding	1.00	Ponding	1.00
Duckclub	35	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00		
		Restricted permeability	1.00		
Sandgap	15	Very limited		Somewhat limited	
		Filtering capacity	1.00	Too sandy	0.50
		Restricted permeability	0.46		
328:					
Ticino	45	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46		
Merlin	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
				Too clayey	1.00
329:					
Ticino	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46	Slope	0.37
		Slope	0.37		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
329:					
Observation---------	25	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
330:					
Ticino--------------	65	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	0.46	Slope	0.37
		Slope	0.37		
Rock outcrop--------	20	Not rated		Not rated	
331:					
Toll----------------	85	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Slope	0.04	Slope	0.04
332:					
Toll----------------	45	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Slope	0.04	Slope	0.04
Nevador-------------	40	Very limited		Not limited	
		Restricted permeability	1.00		
333:					
Torriorthents-------	50	Not rated		Not rated	
Gumble--------------	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
334:					
Tumtum--------------	85	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
		Slope	0.16	Slope	0.16
335:					
Tumtum--------------	85	Very limited		Somewhat limited	
		Depth to cemented pan	1.00	Depth to thin cemented pan	0.50
336:					
Turpin--------------	85	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Ponding	1.00	Ponding	1.00
		Depth to saturated zone	0.40		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
337:					
Vanwyper	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Content of large stones	0.36
		Content of large stones	0.36		
Rock outcrop	20	Not rated		Not rated	
338:					
Vergas	85	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
339:					
Vil	85	Very limited		Very limited	
		Depth to cemented pan	1.00	Depth to thick cemented pan	1.00
		Slope	0.37	Seepage	1.00
				Too clayey	0.50
				Slope	0.37
340:					
Vining	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
341:					
Vining	55	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
Tuffo	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	1.00	Slope	1.00
342:					
Vitale	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Slope	0.84
		Slope	0.84	Too clayey	0.50
		Content of large stones	0.25	Content of large stones	0.25
343:					
Vitale	50	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	0.50
		Slope	0.37	Slope	0.37
		Content of large stones	0.20	Content of large stones	0.20
Merlin	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
344:					
Vitale	35	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	0.50
		Slope	0.37	Slope	0.37
		Content of large stones	0.04	Content of large stones	0.04
Merlin	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	1.00
		Content of large stones	0.01	Slope	0.37
				Content of large stones	0.01
Doyn	20	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Slope	0.37
345:					
Vitale	60	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	0.50
		Slope	0.37	Slope	0.37
		Content of large stones	0.20	Content of large stones	0.20
Observation	30	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.37	Too clayey	0.50
				Slope	0.37
346:					
Vitale	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Restricted permeability	1.00	Too clayey	0.50
		Content of large stones	0.25	Content of large stones	0.25
Rock outcrop	20	Not rated		Not rated	
347:					
Voltage	85	Somewhat limited		Not limited	
		Restricted permeability	0.46		
348:					
Voltage	60	Somewhat limited		Not limited	
		Restricted permeability	0.46		
Crowcamp	25	Very limited		Very limited	
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Ponding	1.00
		Ponding	1.00		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
349:					
Voltage	45	Somewhat limited Restricted permeability	 0.46	Not limited	
Crowcamp	40	Very limited Restricted permeability Depth to saturated zone	 1.00 1.00	Very limited Depth to saturated zone	 1.00
350:					
Voltage	65	Somewhat limited Restricted permeability	 0.46	Not limited	
Widowspring	20	Very limited Depth to saturated zone Restricted permeability	 1.00 0.72	Very limited Depth to saturated zone	 1.00
351:					
Wagontire	85	Very limited Depth to cemented pan Slope	 1.00 0.37	Very limited Depth to thick cemented pan Seepage Too clayey Slope	 1.00 1.00 0.50 0.37
352:					
Wagontire	55	Very limited Depth to cemented pan Slope	 1.00 0.37	Very limited Depth to thick cemented pan Seepage Too clayey Slope	 1.00 1.00 0.50 0.37
Vil	30	Very limited Depth to cemented pan Slope	 1.00 0.37	Very limited Depth to thick cemented pan Seepage Too clayey Slope	 1.00 1.00 0.50 0.37
353:					
Waspo	45	Very limited Restricted permeability Depth to bedrock	 1.00 1.00	Very limited Depth to bedrock	 1.00
Poall	40	Very limited Restricted permeability	 1.00	Not limited	
354:					
Water	100	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
355:					
Welch	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
356:					
Welch	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00	Ponding	1.00
		Ponding	1.00		
357:					
Welch	40	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	1.00		
Roschene	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Restricted permeability	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Too clayey	0.50
Cumulic Haploxerolls	20	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46		
358:					
Wenas	50	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Filtering capacity	1.00	Seepage	1.00
		Restricted permeability	0.46		
Loupence	25	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	0.94	Depth to saturated zone	1.00
		Restricted permeability	0.46	Seepage	1.00
Cumulic Haploxerolls	15	Very limited		Very limited	
		Flooding	1.00	Flooding	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.46		

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
359:					
Westbutte	85	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
360:					
Westbutte	85	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46		
361:					
Westbutte	45	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Bocker	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.93	Content of large stones	0.93
362:					
Westbutte	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Lambring	25	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.42
		Content of large stones	0.20		
Rock outcrop	20	Not rated		Not rated	
363:					
Westbutte	75	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Rock outcrop	15	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
364:					
Westbutte	65	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Rock outcrop	20	Not rated		Not rated	
365:					
Westbutte	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.96	Content of large stones	0.96
		Restricted permeability	0.46		
Lambring	35	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.46
		Content of large stones	0.25		
Rock outcrop	15	Not rated		Not rated	
366:					
Westbutte	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.96	Content of large stones	0.96
		Restricted permeability	0.46		
Lambring	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.46
		Content of large stones	0.25		
Rock outcrop	15	Not rated		Not rated	
367:					
Westbutte	40	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Lambring	30	Very limited		Very limited	
		Slope	1.00	Slope	1.00
		Restricted permeability	0.46	Content of large stones	0.46
		Content of large stones	0.25		
Rock outcrop	15	Not rated		Not rated	

Table 11.--Sanitary Facilities--Continued

Map symbol and soil name	Pct. of map unit	Septic tank absorption fields		Trench sanitary landfill	
		Rating class and limiting features	Value	Rating class and limiting features	Value
368:					
Westbutte	50	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Observation	40	Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00
		Slope	0.84	Slope	0.84
		Content of large stones	0.01	Too clayey	0.50
				Content of large stones	0.01
369:					
Westbutte	35	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	1.00	Content of large stones	1.00
		Restricted permeability	0.46		
Rock outcrop	30	Not rated		Not rated	
Pernty	25	Very limited		Very limited	
		Depth to bedrock	1.00	Slope	1.00
		Slope	1.00	Depth to bedrock	1.00
		Content of large stones	0.08	Content of large stones	0.08
370:					
Widowspring	85	Very limited		Very limited	
		Depth to saturated zone	1.00	Depth to saturated zone	1.00
		Restricted permeability	0.72		
371:					
Windybutte	85	Very limited		Not limited	
		Restricted permeability	1.00		
372:					
Wolverine	85	Very limited		Very limited	
		Filtering capacity	1.00	Too sandy	1.00
		Slope	0.04	Slope	0.04
373:					
Denied access	100	Not rated		Not rated	

Table 12.--Construction Materials

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.00 to 0.99. The closer the value is to 0, the greater the potential limitation. Values of 0 are absolute limitations based on the soil property criteria used to develop the interpretation. Values closer to 1.0 have less of a limitation. Limiting features with values of 1.00 have absolutely no limitation. Fine-earth fraction and rock fragment content are given on a weight basis. A brief summary of rating criteria and abbreviations is given at the end of this report. The symbol < means less than; > means more than)

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Actem	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.02
						Slope 8 to 12 percent	0.63
						Rock fragment content	0.88
2:							
Actem	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.02
						Rock fragment content	0.88
						Slope 8 to 12 percent	0.96
3:							
Actem	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.02
						Slope 8 to 12 percent	0.63
						Rock fragment content	0.88
Robson	40	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
4:							
Alvodest	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR >13	0.00
						EC >8 dS/m	0.00
						Clay >40 percent	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
5:							
Alvodest	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR >13	0.00
						EC >8 dS/m	0.00
						Clay >40 percent	0.00
Playas	35	Not rated		Not rated		Not rated	
6:							
Alyan	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.96
7:							
Anatone	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
8:							
Anatone, moist	50	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope >15 percent	0.00
Anatone	35	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.72
9:							
Anatone	45	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
Teguro	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
9:							
Observation--------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
10:							
Anatone, moist-----	45	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20 inches	0.00
Egyptcreek---------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Rock outcrop-------	15	Not rated		Not rated		Not rated	
11:							
Anatone, moist-----	50	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer possible source	0.34			Slope >15 percent	0.00
Minam---------------	20	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.68
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Rock fragment content	0.72
Rock outcrop-------	15	Not rated		Not rated		Not rated	
12:							
Anatone------------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
12:							
Teguro	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
Rock outcrop	20	Not rated		Not rated		Not rated	
13:							
Anatone	40	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Bottom layer possible source	0.34			Rock fragments content	0.00
Westbutte	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Rock outcrop	15	Not rated		Not rated		Not rated	
14:							
Anawalt	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
15:							
Anawalt	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.88
Lonely	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.50
						Clay 27 to 40 percent	0.98

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
16:							
Anawalt	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
Oreneva	25	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
				Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.06
		Bottom layer not a source	0.00				
17:							
Anawalt	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
Raz	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.28
18:							
Ateron	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
						Clay 27 to 40 percent	0.98
19:							
Ateron	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
						Clay 27 to 40 percent	0.98
Rubble land	35	Not rated		Not rated		Not rated	
20:							
Ateron	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
						Clay 27 to 40 percent	0.98

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20:							
Observation--------	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.84
21:							
Atlow--------------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Clay 27 to 40 percent	0.98
22:							
Atlow--------------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Clay 27 to 40 percent	0.98
Rock outcrop-------	15	Not rated		Not rated		Not rated	
23:							
Atlow--------------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
						Clay 27 to 40 percent	0.98
Rock outcrop-------	15	Not rated		Not rated		Not rated	
24:							
Atlow--------------	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Clay 27 to 40 percent	0.98
Skedaddle----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines of thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope >15 percent	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
25:							
Ausmus	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
26:							
Ausmus	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
27:							
Baconcamp	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
28:							
Baconcamp	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.16
						Depth to bedrock 20 to 40 inches	0.78
Clamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 12 to 15 percent	0.16
						Clay 27 to 40 percent	0.98
29:							
Baconcamp	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Clamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
						Clay 27 to 40 percent	0.98

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
30:							
Baconcamp	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Clamp	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
						Clay 27 to 40 percent	0.98
Rock outcrop	20	Not rated		Not rated		Not rated	
31:							
Baconcamp	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.78
						Slope 8 to 12 percent	0.96
Rock outcrop	15	Not rated		Not rated		Not rated	
32:							
Baconcamp	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Rock outcrop	15	Not rated		Not rated		Not rated	
33:							
Baconcamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Rock outcrop	30	Not rated		Not rated		Not rated	
Hackwood	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.08

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34:							
Baconcamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Hapgood	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.02
Rock outcrop	15	Not rated		Not rated		Not rated	
35:							
Baconcamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Krackle	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52
Rock outcrop	15	Not rated		Not rated		Not rated	
36:							
Berdugo	85	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
				Thickest layer not a source	0.00	Hard to reclaim	0.02
		Bottom layer not a source	0.00				
37:							
Berdugo	50	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
				Thickest layer not a source	0.00	Hard to reclaim	0.02
		Bottom layer not a source	0.00				
Catlow	35	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.00	Hard to reclaim	0.00
				Bottom layer possible source	0.64	Rock fragment content	0.00
		Bottom layer not a source	0.00				

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
38:							
Bigfrog	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope >15 percent	0.00
Brock	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope >15 percent	0.00
39:							
Bocker	50	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Slope >15 percent	0.00
Westbutte	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
40:							
Boravall	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR >13	0.00
						Clay >40 percent	0.00
Playas	30	Not rated		Not rated		Not rated	
41:							
Borobey	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.04	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	Sand fractions 75 to 85 percent	0.02
						Hard to reclaim	0.92
						Slope 8 to 12 percent	0.96

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
42:							
Boulder Lake-------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
43:							
Boulder Lake-------	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
Merlin-------------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
44:							
Boulder Lake-------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
Spangenburg--------	40	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
45:							
Brabble------------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.12
						Depth to pan 20 to 40 inches	0.80
						Depth to bedrock 20 to 40 inches	0.94
Calderwood---------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
46:							
Brace	40	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.71
						Rock fragment content	0.72
						Depth to bedrock 20 to 40 inches	0.82
Coztur	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
Rock outcrop	15	Not rated		Not rated		Not rated	
47:							
Brace	45	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.71
						Rock fragment content	0.72
						Depth to bedrock 20 to 40 inches	0.82
Vergas	40	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Sand fractions >85 percent	0.00
				Bottom layer possible source	0.53	Hard to reclaim	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00
48:							
Bruncan, thick surface	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.28
Bruncan, thin surface	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.28

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
49:							
Brunzell	90	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
				Bottom layer possible source	0.17	Hard to reclaim	0.00
		Bottom layer not a source	0.00				
50:							
Bucklake	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay 27 to 40 percent	0.12
						Depth to bedrock 20 to 40 inches	0.58
51:							
Bucklake	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay 27 to 40 percent	0.12
						Depth to bedrock 20 to 40 inches	0.58
Mahoon	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28
Rubble land	20	Not rated		Not rated		Not rated	
52:							
Calderwood	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
53:							
Calderwood	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53:							
McConnel	20	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03	Hard to reclaim	0.00
						Rock fragment content	0.00
		Bottom layer not a source	0.00	Bottom layer possible source	0.08	Sand fractions 75 to 85 percent	0.25
						Slope 8 to 12 percent	0.84
54:							
Carryback	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Slope 8 to 12 percent	0.63
						Rock fragment content	0.95
55:							
Carryback	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.16
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
56:							
Carryback	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Slope 8 to 12 percent	0.63
						Rock fragment content	0.72
57:							
Carryback	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Slope 12 to 15 percent	0.37
						Rock fragment content	0.72
58:							
Carryback, thin surface	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Slope 8 to 12 percent	0.63
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
58:							
Carryback, thick surface	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Slope 8 to 12 percent	0.63
						Rock fragment content	0.72
59:							
Carryback, thin surface	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.95
Carryback, south slopes	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
Carryback, north slopes	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
60:							
Carryback, south slopes	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60:							
Carryback, north slopes	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
61:							
Carryback	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
						Slope 8 to 12 percent	0.96
Pearlwise	30	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
						Slope 8 to 12 percent	0.96
62:							
Carryback	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
Pearlwise	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.88
Rock outcrop	15	Not rated		Not rated		Not rated	
63:							
Carryback	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
63:							
Dickle	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.95
						Clay 27 to 40 percent	0.98
64:							
Carvix	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
65:							
Clamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
						Clay 27 to 40 percent	0.98
Baconcamp	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Hackwood	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.08
66:							
Coztur	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.96
67:							
Crowcamp	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.02

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
68:							
Crowcamp	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.02
Ausmus	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
Poujade	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
69:							
Davey	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Sand fractions 75 to 85 percent	0.02
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	Rock fragment content	0.28
70:							
Davey	45	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Sand fractions 75 to 85 percent	0.02
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	Rock fragment content	0.28
Oreanna	40	Fair source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.07	Rock fragment content	0.00
		Thickest layer possible source	0.25	Thickest layer possible source	0.14	Sand fractions 75 to 85 percent	0.01
71:							
Defenbaugh	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
72:							
Deppy	85	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
				Bottom layer possible source	0.03	Slope 8 to 12 percent	0.84
		Bottom layer not a source	0.00			SAR 4 to 13	0.90
						Clay 27 to 40 percent	0.98
73:							
Deppy	45	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
				Bottom layer possible source	0.03	Slope 8 to 12 percent	0.84
		Bottom layer not a source	0.00			SAR 4 to 13	0.90
						Clay 27 to 40 percent	0.98
Tumtum	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Slope 8 to 12 percent	0.84
						Clay 27 to 40 percent	0.98
74:							
Dickle	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.95
						Clay 27 to 40 percent	0.98
75:							
Dixon	85	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
				Bottom layer possible source	0.03	Rock fragment content	0.12
		Bottom layer possible source	0.25				
76:							
Dixon	85	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
				Bottom layer possible source	0.03	Rock fragment content	0.12
		Bottom layer possible source	0.25			SAR 4 to 13	0.60
77:							
Dixon	85	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
				Bottom layer possible source	0.03	Rock fragment content	0.12
		Bottom layer possible source	0.25			EC 4 to 8 dS/m	0.88
						Slope 8 to 12 percent	0.96

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
78:							
Dixon	50	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
				Bottom layer possible source	0.03	Rock fragment content	0.12
		Bottom layer possible source	0.25			SAR 4 to 13	0.60
Droval	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
						SAR >13	0.00
						EC >8 dS/m	0.00
79:							
Dogmountain	85	Good source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
				Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.01
		Bottom layer possible source	0.75			Slope 12 to 15 percent	0.37
80:							
Doyn	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.72
81:							
Doyn	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.72
Merlin	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
82:							
Doyn	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
82:							
Arcia	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.12
						Depth to bedrock 20 to 40 inches	0.16
83:							
Drewsey	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.01		
84:							
Drewsey	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.01		
85:							
Drewsey	35	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.01		
Torriorthents	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
Gumble	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Slope 8 to 12 percent	0.63
86:							
Droval	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
						SAR >13	0.00
						EC >8 dS/m	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
87:							
Duff	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Hard to reclaim	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.97
88:							
Duff	45	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 12 to 15 percent	0.16
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.32
						Rock fragment content	0.97
Clamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 12 to 15 percent	0.16
						Clay 27 to 40 percent	0.98
89:							
Duff	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.32
						Rock fragment content	0.97
Clamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
						Clay 27 to 40 percent	0.98
90:							
Duff	60	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Hard to reclaim	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.97
Hackwood	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Hard to reclaim	0.08

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91:							
Edemaps	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.16
						Slope 12 to 15 percent	0.16
						Rock fragment content	0.50
						Depth to bedrock 20 to 40 inches	0.52
92:							
Edemaps	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.16
						Rock fragment content	0.50
						Depth to bedrock 20 to 40 inches	0.52
Carryback	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.72
93:							
Enko	85	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10		
94:							
Enko	50	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10		
Catlow	35	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.00	Hard to reclaim	0.00
				Bottom layer possible source	0.64	Rock fragment content	0.00
		Bottom layer not a source	0.00				

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
95:							
Enko	50	Poor source		Fair source		Fair source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10		
Catlow	35	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.00	Hard to reclaim	0.00
						Rock fragment content	0.00
				Bottom layer possible source	0.64	Slope 8 to 12 percent	0.63
		Bottom layer not a source	0.00				
96:							
Enko	50	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10		
Catlow	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Hard to reclaim	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 12 to 15 percent	0.16
97:							
Erakatak	85	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock 20 to 40 inches	0.28
98:							
Erakatak	40	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock 20 to 40 inches	0.28

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
98:							
Lambring	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop	10	Not rated		Not rated		Not rated	
99:							
Erakatak	35	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Clay >40 percent	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.28
Merlin	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.02
Westbutte	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
100:							
Erakatak	65	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Clay >40 percent	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.28
Rock outcrop	20	Not rated		Not rated		Not rated	
101:							
Erakatak	35	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Clay >40 percent	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.28

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
101:							
Ninemile	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50
Hapgood	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.02
102:							
Felcher	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
103:							
Felcher	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
Rock outcrop	20	Not rated		Not rated		Not rated	
104:							
Felcher	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
Rock outcrop	30	Not rated		Not rated		Not rated	
Brezniak	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
105:							
Felcher	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
Rock outcrop	30	Not rated		Not rated		Not rated	
Westbutte	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
106:							
Felcher	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.12
Sagehen	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.50
						Clay 27 to 40 percent	0.98
107:							
Felcher	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
Sagehen	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.12
						Clay 27 to 40 percent	0.98
108:							
Felcher	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
108:							
Fitzwater----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
						Rock fragment content	0.00
Rock outcrop-------	15	Not rated		Not rated		Not rated	
109:							
Felcher----------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
Pernty----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
Ninemile----------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50
110:							
Felcher----------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
Westbutte----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
111:							
Final	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						Wetness at depth of 1 to 3 feet	0.29
						Clay 27 to 40 percent	0.76
112:							
Fitzwater	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
						Rock fragment content	0.00
Hapgood, thick surface	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.02
Hapgood, thin surface	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.02
113:							
Fitzwater	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
						Rock fragment content	0.00
Rock outcrop	25	Not rated		Not rated		Not rated	
114:							
Flank	50	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
				Bottom layer possible source	0.02	Depth to bedrock <20 inches	0.00
		Bottom layer possible source	0.19				
Lava flows	35	Not rated		Not rated		Not rated	

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
115:							
Fourwheel----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.88
116:							
Fourwheel----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.88
117:							
Freznik----------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.78
						Slope 8 to 12 percent	0.96
						Rock fragment content	0.97
118:							
Fury----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
119:							
Fury----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
120:							
Fury----------	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
120:							
Degarmo	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Clay >40 percent	0.00
						Wetness at depth of 1 to 3 feet	0.29
121:							
Fury	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
Housefield	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
122:							
Fury	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
Housefield	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
Skidoosprings	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.06	SAR >13	0.00
						EC 4 to 8 dS/m	0.50
123:							
Fury	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
123:							
Opie	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						SAR 4 to 13	0.60
						Hard to reclaim	0.68
124:							
Fury	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
Skidoosprings	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.06	SAR >13	0.00
						EC 4 to 8 dS/m	0.50
Opie	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						SAR 4 to 13	0.60
						Hard to reclaim	0.68
125:							
Fury	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
Widowspring	40	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
126:							
Gaib	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
127:							
Gaib	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.96
Ateron	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.96
						Clay 27 to 40 percent	0.98
128:							
Gaib	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	
129:							
Gilispie	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.96
Noname	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.72
						Slope 8 to 12 percent	0.96
130:							
Gochea	85	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Hard to reclaim	0.00
		Bottom layer not a source	0.00	Thickest layer possible source	0.04	Rock fragment content	0.12
131:							
Goldrun	55	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Sand fractions 75 to 85 percent	0.20
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
131:							
Alvodest	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR >13	0.00
						EC >8 dS/m	0.00
						Clay >40 percent	0.00
132:							
Gradon	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.28
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Depth to pan 20 to 40 inches	0.71
133:							
Guano	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.72
						Slope 8 to 12 percent	0.96
134:							
Gumble	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Slope 8 to 12 percent	0.63
135:							
Gumble	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.28
136:							
Gumble	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Slope 8 to 12 percent	0.63
Mahoon	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136:							
Cagle	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.12
						Depth to bedrock 20 to 40 inches	0.82
137:							
Hackwood	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.08
138:							
Hackwood	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.08
Baconcamp	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
139:							
Hapgood	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.02
140:							
Hart Camp	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.84
141:							
Hart Camp	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
142:							
Helphenstein-------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR >13	0.00
						EC 4 to 8 dS/m	0.88
Goldrun----------	35	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Sand fractions 75 to 85 percent	0.20
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03	Slope 8 to 12 percent	0.96
143:							
Homefield----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.22
						EC 4 to 8 dS/m	0.88
144:							
Housefield---------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
145:							
Housefield---------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
Doubleo----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.04
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.00		
146:							
Icene----------	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
Playas----------	25	Not rated		Not rated		Not rated	

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
147:							
Icene	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
Playas	25	Not rated		Not rated		Not rated	
148:							
Jesse Camp	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04		
149:							
Jimgreen	90	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Organic matter content >30 percent	0.00
150:							
Jimgreen	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Organic matter content >30 percent	0.00
Housefield	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
151:							
Kegler	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan 20 to 40 inches	0.97
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
152:							
Kerrfield----------	85	Poor source		Fair source		Fair source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03	Slope 12 to 15 percent	0.37
				Bottom layer possible source	0.13	Depth to bedrock 20 to 40 inches	0.68
		Bottom layer not a source	0.00				
153:							
Klicker----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Clay 27 to 40 percent	0.98
154:							
Klicker----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
						Clay 27 to 40 percent	0.98
155:							
Krackle, north slopes----------	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52
Krackle, south slopes----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52
156:							
Krackle----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156:							
Baconcamp----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.78
Rock outcrop-------	15	Not rated		Not rated		Not rated	
157:							
Krackle------------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52
Baconcamp----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.78
Rock outcrop-------	15	Not rated		Not rated		Not rated	
158:							
Krackle------------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52
Rock outcrop-------	15	Not rated		Not rated		Not rated	
159:							
Krackle------------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Depth to bedrock 20 to 40 inches	0.52
Baconcamp----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
159:							
Hackwood	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.08
160:							
Ladycomb	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.72
161:							
Lambranch	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.00
162:							
Lambring	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Egyptcreek	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Rock outcrop	15	Not rated		Not rated		Not rated	
163:							
Lambring, thick surface	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
163:							
Lambring, thin surface	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
164:							
Lambring	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rubble land	35	Not rated		Not rated		Not rated	
165:							
Langslet	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.89
166:							
Lava flows	85	Not rated		Not rated		Not rated	
167:							
Lava flows	55	Not rated		Not rated		Not rated	
Flank	30	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
				Bottom layer possible source	0.02	Depth to bedrock <20 inches	0.00
		Bottom layer possible source	0.19				
168:							
Lawen	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.01	Sand fractions <75 percent or null	1.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.01		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
169:							
Leathers----------	85	Poor source		Good source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.07	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.82	EC >8 dS/m	0.00
170:							
Leathers----------	85	Poor source		Good source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.07	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.82	EC >8 dS/m	0.00
171:							
Leemorris----------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay 27 to 40 percent	0.50
						Depth to bedrock 20 to 40 inches	0.52
						Slope 8 to 12 percent	0.96
Buckwilder---------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.38
						Rock fragment content	0.88
						Slope 8 to 12 percent	0.96
172:							
Leemorris----------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay 27 to 40 percent	0.50
						Depth to bedrock 20 to 40 inches	0.52
Buckwilder---------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.38
						Rock fragment content	0.88

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
173:							
Legler	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
174:							
Locane	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Slope >15 percent	0.00
175:							
Lolak	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
						SAR >13	0.00
176:							
Lolak	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
						SAR >13	0.00
Ausmus	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
177:							
Lonely	50	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.50
						Clay 27 to 40 percent	0.98
Doyn	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.04
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
178:							
Lonely	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Rock fragment content	0.50
						Clay 27 to 40 percent	0.98
Robson	35	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
		Bottom layer not a source	0.00			Slope 8 to 12 percent	0.84
179:							
Longcreek	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.00
Cleavage	40	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20 inches	0.00
180:							
Longcreek	75	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.00
Rock outcrop	10	Not rated		Not rated		Not rated	
181:							
Loupence	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
182:							
Madeline	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.68
183:							
Madeline	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.68
184:							
Madeline	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.68
Ninemile	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
185:							
Madeline	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay >40 percent	0.00
						Rock fragment content	0.68
Rock outcrop	20	Not rated		Not rated		Not rated	
186:							
Mahoon	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187:							
Mahoon	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28
						Slope 8 to 12 percent	0.63
Brezniak	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Slope 8 to 12 percent	0.63
Longcreek	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
188:							
Mahoon	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28
Cagle	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.12
						Depth to bedrock 20 to 40 inches	0.82
189:							
Mahoon	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
189:							
Risley	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.88
						Depth to bedrock 20 to 40 inches	0.98
190:							
Mahoon	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Depth to bedrock 20 to 40 inches	0.28
Cotant	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock <20 inches	0.00
						Rock fragment content	0.97
191:							
Mcbain	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
						Calcium carbonates 15 to 40 percent	0.80
Ausmus	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
192:							
McConnel	85	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03	Hard to reclaim	0.00
						Rock fragment content	0.00
		Bottom layer not a source	0.00	Bottom layer possible source	0.08	Sand fractions 75 to 85 percent	0.25

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
193:							
Merlin	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.96
194:							
Merlin, very stony	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.63
Merlin, very cobbly	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
195:							
Merlin	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
Ateron	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
						Clay 27 to 40 percent	0.98
196:							
Merlin	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.63
Ateron	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
						Clay 27 to 40 percent	0.98

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
196:							
Rubble land	15	Not rated		Not rated		Not rated	
197:							
Merlin	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
Ateron	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
						Clay 27 to 40 percent	0.98
Ticino	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.03
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 layer	0.32
						Slope 8 to 12 percent	0.63
198:							
Merlin	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.63
Erakatak	30	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.28
						Slope 8 to 12 percent	0.63
Teguro	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
199:							
Merlin	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
199:							
Observation--------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
200:							
Merlin-------------	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
Observation--------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
201:							
Merlin-------------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.96
Rubble land--------	15	Not rated		Not rated		Not rated	
202:							
Merlin-------------	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.96
Teguro-------------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.96

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
203:							
Merlin	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.63
Teguro	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
204:							
Mesman	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
205:							
Mesman	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
206:							
Mesman	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
Norad	40	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
207:							
Middlebox----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.16
						Depth to bedrock 20 to 40 inches	0.78
208:							
Middlebox, north slopes----------	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
Middlebox, south slopes----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
209:							
Minam----------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.68
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Rock fragment content	0.72
210:							
Minam----------	60	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.68
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Rock fragment content	0.72
Welch----------	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.97
211:							
Modoc----------	85	Fair source		Poor source		Fair source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.16
				Bottom layer possible source	0.06		
		Bottom layer possible source	0.38			Slope 8 to 12 percent	0.96
						Rock fragment content	0.97

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
212:							
Morfitt	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
213:							
Morganhills	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Rock fragment content	0.72
214:							
Morganhills, more than 12 percent slopes	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Slope >15 percent	0.00
						Rock fragment content	0.72
Morganhills, less than 12 percent slopes	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Rock fragment content	0.72
215:							
Mound	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.24
						Slope 8 to 12 percent	0.63
216:							
Nevador	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Hard to reclaim	0.82
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Rock fragment content	0.97

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
217:							
Ninemile	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
218:							
Ninemile	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50
219:							
Ninemile	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.84
220:							
Ninemile	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
Carvix	30	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
221:							
Ninemile	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
Doyn	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
222:							
Ninemile	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
Edemaps	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.16
						Rock fragment content	0.50
						Depth to bedrock 20 to 40 inches	0.52
223:							
Ninemile	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.96
Madeline	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.68
						Slope 8 to 12 percent	0.96
224:							
Ninemile	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
Pearlwise	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.88
225:							
Ninemile	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
225:							
Reluctan	30	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.72
226:							
Ninemile	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50
Reluctan	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
						Rock fragment content	0.72
Rubble land	15	Not rated		Not rated		Not rated	
227:							
Ninemile	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
Rock outcrop	15	Not rated		Not rated		Not rated	
228:							
Ninemile	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 12 to 15 percent	0.16
						Rock fragment content	0.50
Rubble land	20	Not rated		Not rated		Not rated	
229:							
Ninemile	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.96

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
229:							
Westbutte----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.22
						Slope 8 to 12 percent	0.96
230:							
Ninemile, very cobbly----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50
Westbutte----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
Ninemile, extremely stony----------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50
231:							
Ninemile, very cobbly----------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
Ninemile, extremely stony----------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
232:							
Ninemile	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 12 to 15 percent	0.16
						Rock fragment content	0.50
Felcher	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12
233:							
Noname	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.72
Dickle	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.95
						Clay 27 to 40 percent	0.98
234:							
Noname	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.72
Duff	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.32
						Rock fragment content	0.97
Rock outcrop	20	Not rated		Not rated		Not rated	
235:							
Norad	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
236:							
Norad	45	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
Spangenburg	40	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
237:							
Nuss	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
238:							
Nuss	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
Merlin	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
239:							
Nuss	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
Rock outcrop	30	Not rated		Not rated		Not rated	

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
240:							
Observation--------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
241:							
Observation--------	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Slope 12 to 15 percent	0.16
						Rock fragment content	0.50
Rock outcrop-------	20	Not rated		Not rated		Not rated	
242:							
Observation--------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
Royst--------------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.12
						Slope 8 to 12 percent	0.63
Merlin-------------	15	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.02
						Slope 8 to 12 percent	0.63
243:							
Observation--------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
243:							
Teguro	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
244:							
Observation	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
Lambring	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
245:							
Olac	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
Atlow	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Clay 27 to 40 percent	0.98
246:							
Opie	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
						SAR 4 to 13	0.60
						Hard to reclaim	0.68

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
247:							
Oreneva	85	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
				Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.06
		Bottom layer not a source	0.00				
248:							
Outerkirk	85	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.04	Rock fragment content	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	SAR 4 to 13	0.98
249:							
Outerkirk	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.04		
250:							
Outerkirk	55	Poor source		Fair source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.04	Rock fragment content	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	SAR 4 to 13	0.98
Defenbaugh	30	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
251:							
Ozamis	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
252:							
Pearlwise	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.88

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
253:							
Pernty	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.96
254:							
Pernty	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
255:							
Pernty	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
256:							
Pernty	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
Rock outcrop	25	Not rated		Not rated		Not rated	
257:							
Pernty	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
Westbutte	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
Ninemile	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.50

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
258:							
Pits	100	Not rated		Not rated		Not rated	
259:							
Playas	95	Not rated		Not rated		Not rated	
260:							
Playas	60	Not rated		Not rated		Not rated	
Thenarrows	25	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	SAR >13	0.00
261:							
Poall	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.88
262:							
Poall	50	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
Gumble	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.28
263:							
Pomerening	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.13	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.13	Sand fractions 75 to 85 percent	0.03
						Hard to reclaim	0.32
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
264:							
Pomerening---------	40	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.13	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.13	Sand fractions 75 to 85 percent	0.03
						Hard to reclaim	0.32
						Slope 8 to 12 percent	0.63
Flank--------------	25	Fair source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
				Bottom layer possible source	0.02	Depth to bedrock <20 inches	0.00
		Bottom layer possible source	0.19			Slope 8 to 12 percent	0.63
Lava flows---------	20	Not rated		Not rated		Not rated	
265:							
Porterfield--------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.12
						Slope 8 to 12 percent	0.63
266:							
Porterfield--------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.12
267:							
Porterfield--------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.12
Tincan-------------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
Rock outcrop-------	15	Not rated		Not rated		Not rated	

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
268:							
Poujade	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
269:							
Poujade	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
270:							
Poujade	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
Ausmus	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
271:							
Raz	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.28
272:							
Raz	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.28
						Slope 8 to 12 percent	0.63
Brace	35	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.71
						Rock fragment content	0.72
						Depth to bedrock 20 to 40 inches	0.82

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
273:							
Raz	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.28
						Slope 8 to 12 percent	0.63
Brace	35	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope 8 to 12 percent	0.63
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.71
						Rock fragment content	0.72
						Depth to bedrock 20 to 40 inches	0.82
274:							
Reallis	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Rock fragment content	0.03
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.05	Hard to reclaim	0.98
275:							
Reallis	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Rock fragment content	0.03
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.05	Hard to reclaim	0.98
276:							
Reese	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR >13	0.00
						EC >8 dS/m	0.00
						Calcium carbonates 15 to 40 percent	0.80
277:							
Reluctan	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.72

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
278:							
Reluctan----------	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.72
279:							
Riddleranch--------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.38
Lambring----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop-------	15	Not rated		Not rated		Not rated	
280:							
Riddleranch--------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.38
Rock outcrop-------	35	Not rated		Not rated		Not rated	
281:							
Rinconflat---------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Hard to reclaim	0.00
282:							
Rio King----------	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
283:							
Rio King	55	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03		
Droval	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
						SAR >13	0.00
						EC >8 dS/m	0.00
284:							
Risley	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.88
						Depth to bedrock 20 to 40 inches	0.98
Gumble	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.28
						Slope 8 to 12 percent	0.63
285:							
Risley	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.04
						Rock fragment content	0.88
						Depth to bedrock 20 to 40 inches	0.98
Gumble	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Slope 12 to 15 percent	0.04
						Rock fragment content	0.28
Torriorthents	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.04

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
286:							
Risley	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.16
						Rock fragment content	0.88
						Depth to bedrock 20 to 40 inches	0.98
Rock outcrop	25	Not rated		Not rated		Not rated	
287:							
Robson	45	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.96
Anawalt	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
						Slope 8 to 12 percent	0.96
288:							
Robson	45	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
Fourwheel	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.88
289:							
Robson	55	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Depth to bedrock <20 inches	0.00
						Slope 12 to 15 percent	0.04
Felcher	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.12

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
290:							
Roca	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay >40 percent	0.00
						Depth to bedrock 20 to 40 inches	0.12
291:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Rubble land	30	Not rated		Not rated		Not rated	
292:							
Rock outcrop	50	Not rated		Not rated		Not rated	
Baconcamp	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.78
293:							
Royst	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.12
						Rock fragment content	0.12
						Slope 8 to 12 percent	0.63
Merlin	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
294:							
Rubble land	35	Not rated		Not rated		Not rated	
Nuss	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
294:							
Ateron	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
						Clay 27 to 40 percent	0.98
295:							
Sagehen	75	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Rock fragment content	0.50
						Clay 27 to 40 percent	0.98
Rock outcrop	10	Not rated		Not rated		Not rated	
296:							
Sagehen	75	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.50
						Clay 27 to 40 percent	0.98
Rock outcrop	10	Not rated		Not rated		Not rated	
297:							
Sandgap	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.03	Sand fractions 75 to 85 percent	0.47
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.07		
298:							
Sandgap	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.03	Sand fractions 75 to 85 percent	0.47
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.07		
299:							
Seharney	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
300:							
Skedaddle----------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope >15 percent	0.00
Atlow----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope >15 percent	0.00
						Clay 27 to 40 percent	0.98
Rock outcrop-------	15	Not rated		Not rated		Not rated	
301:							
Skedaddle----------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
Atlow----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
						Clay 27 to 40 percent	0.98
Rock outcrop-------	15	Not rated		Not rated		Not rated	
302:							
Skedaddle----------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
Rock outcrop-------	15	Not rated		Not rated		Not rated	
303:							
Skedaddle, south slopes----------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
303:							
Skedaddle, north slopes	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
304:							
Skidoosprings	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.06	SAR >13	0.00
						EC 4 to 8 dS/m	0.50
305:							
Skidoosprings	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.06	SAR >13	0.00
						EC 4 to 8 dS/m	0.50
306:							
Skunkfarm	65	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.02	Clay 27 to 40 percent	0.98
Cumulic Haploxerolls	20	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
307:							
Skunkfarm	45	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.02	Clay 27 to 40 percent	0.98
Doubleo	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.04
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
308:							
Skunkfarm----------	35	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.02	Clay 27 to 40 percent	0.98
Mcbain----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC 4 to 8 dS/m	0.50
						Calcium carbonates 15 to 40 percent	0.80
Doubleo----------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.04
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.00		
309:							
Skunkfarm----------	60	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of 1 to 3 feet	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.02	Clay 27 to 40 percent	0.98
Skidoosprings------	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.06	SAR >13	0.00
						EC 4 to 8 dS/m	0.50
310:							
Spangenburg--------	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
311:							
Spangenburg--------	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
312:							
Spangenburg--------	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.88
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
313:							
Srednic----------	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to pan 20 to 40 inches	0.16
						Depth to bedrock 20 to 40 inches	0.52
						Slope 8 to 12 percent	0.63
Aval---------------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.05	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.05	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
314:							
Stampede----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Depth to pan 20 to 40 inches	0.05
						Rock fragment content	0.97
315:							
Swaler----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
316:							
Swaler----------	70	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
Swalesilver--------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
317:							
Swalesilver--------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
318:							
Swalesilver--------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
319:							
Swalesilver--------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
320:							
Teguro-------------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 12 to 15 percent	0.16
321:							
Teguro-------------	90	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
322:							
Teguro-------------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
323:							
Teguro-------------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
323:							
Anatone, moist-----	40	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
				Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Bottom layer not a source	0.00			Slope 8 to 12 percent	0.63
324:							
Teguro----------	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
Ateron----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Slope 8 to 12 percent	0.63
						Clay 27 to 40 percent	0.98
325:							
Thenarrows---------	50	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00			SAR >13	0.00
				Bottom layer possible source	0.10		
Duckclub----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.02	Sand fractions 75 to 85 percent	0.51
						EC 4 to 8 dS/m	0.88
326:							
Thenarrows---------	50	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00			SAR >13	0.00
				Bottom layer possible source	0.10		
Duckclub----------	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.02	Sand fractions 75 to 85 percent	0.51
						EC 4 to 8 dS/m	0.88

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
326:							
Dentdraw	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.03	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.06	SAR 4 to 13	0.22
327:							
Thenarrows	35	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	SAR >13	0.00
Duckclub	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.02	Sand fractions 75 to 85 percent	0.51
						EC 4 to 8 dS/m	0.88
Sandgap	15	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.03	Sand fractions 75 to 85 percent	0.47
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.07		
328:							
Ticino	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.03
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
Merlin	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.12
329:							
Ticino	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.03
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
329:							
Observation--------	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
330:							
Ticino-------------	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.03
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
						Slope 8 to 12 percent	0.63
Rock outcrop-------	20	Not rated		Not rated		Not rated	
331:							
Toll---------------	85	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.64	Sand fractions >85 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.64	Slope 8 to 12 percent	0.96
332:							
Toll---------------	45	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.64	Sand fractions >85 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.64	Slope 8 to 12 percent	0.96
Nevador------------	40	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.02	Hard to reclaim	0.82
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Rock fragment content	0.97
333:							
Torriorthents------	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
333:							
Gumble	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Slope >15 percent	0.00
						Rock fragment content	0.28
334:							
Tumtum	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Slope 8 to 12 percent	0.84
						Clay 27 to 40 percent	0.98
335:							
Tumtum	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.03	Clay 27 to 40 percent	0.98
336:							
Turpin	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	SAR >13	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	EC >8 dS/m	0.00
337:							
Vanwyper	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Clay >40 percent	0.00
						Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Rock outcrop	20	Not rated		Not rated		Not rated	
338:							
Vergas	85	Poor source		Fair source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Sand fractions >85 percent	0.00
			0.00	Bottom layer possible source	0.53	Hard to reclaim	0.00
		Bottom layer not a source	0.00			Rock fragment content	0.00

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
339:							
Vil	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Slope 8 to 12 percent	0.63
340:							
Vining	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.03	Depth to bedrock 20 to 40 inches	0.48
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03	Slope 8 to 12 percent	0.63
						Rock fragment content	0.97
341:							
Vining	55	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer possible source	0.03	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer possible source	0.03	Depth to bedrock 20 to 40 inches	0.48
						Rock fragment content	0.97
Tuffo	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.00	Slope >15 percent	0.00
342:							
Vitale	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 12 to 15 percent	0.16
						Depth to bedrock 20 to 40 inches	0.32
343:							
Vitale	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 layer	0.32
						Slope 8 to 12 percent	0.63

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
343:							
Merlin	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
344:							
Vitale	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
						Slope 8 to 12 percent	0.63
Merlin	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Slope 8 to 12 percent	0.63
Doyn	20	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Depth to bedrock <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope 8 to 12 percent	0.63
						Rock fragment content	0.72
345:							
Vitale	60	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.32
						Slope 8 to 12 percent	0.63
Observation	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Rock fragment content	0.50
						Slope 8 to 12 percent	0.63
346:							
Vitale	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.32
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
347:							
Voltage	85	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	EC 4 to 8 dS/m	0.50
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
						Calcium carbonates 15 to 40 percent	0.80
348:							
Voltage	60	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	EC 4 to 8 dS/m	0.50
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
						Calcium carbonates 15 to 40 percent	0.80
Crowcamp	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.02
349:							
Voltage	45	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	EC 4 to 8 dS/m	0.50
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
						Calcium carbonates 15 to 40 percent	0.80
Crowcamp	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Hard to reclaim	0.02
350:							
Voltage	65	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	EC 4 to 8 dS/m	0.50
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	SAR 4 to 13	0.60
						Calcium carbonates 15 to 40 percent	0.80
Widowspring	20	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
351:							
Wagontire----------	85	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
		Bottom layer not a source	0.00			Clay >40 percent	0.00
						Slope 8 to 12 percent	0.63
352:							
Wagontire----------	55	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Depth to pan <20 inches	0.00
				Thickest layer not a source	0.00	Rock fragment content	0.00
						Clay >40 percent	0.00
		Bottom layer not a source	0.00			Slope 8 to 12 percent	0.63
Vil----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to pan <20 inches	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04	Slope 8 to 12 percent	0.63
353:							
Waspo----------	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.28
Poall----------	40	Poor source		Poor source		Fair source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay 27 to 40 percent	0.12
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.88
354:							
Water----------	100	Not rated		Not rated		Not rated	
355:							
Welch----------	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.97

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
356:							
Welch	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.97
357:							
Welch	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
Roschene	25	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
Cumulic Haploxerolls	20	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin	0.00	Thickest layer not a source	0.00		
358:							
Wenas	50	Poor source		Fair source		Poor source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Wetness at depth of <1 foot	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.10	Rock fragment content	0.88
Loupence	25	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Thickest layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.04		
Cumulic Haploxerolls	15	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
359:							
Westbutte	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
360:							
Westbutte	85	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Rock fragment content	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Slope >15 percent	0.00
						Depth to bedrock 20 to 40 inches	0.22
361:							
Westbutte	45	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Bocker	40	Poor source		Poor source		Poor source	
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Bottom layer not a source	0.00	Thickest layer not a source	0.00	Depth to bedrock <20 inches	0.00
						Rock fragment content	0.00
362:							
Westbutte	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Lambring	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop	20	Not rated		Not rated		Not rated	
363:							
Westbutte	75	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
363:							
Rock outcrop-------	15	Not rated		Not rated		Not rated	
364:							
Westbutte----------	65	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Rock outcrop-------	20	Not rated		Not rated		Not rated	
365:							
Westbutte----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Lambring-----------	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop-------	15	Not rated		Not rated		Not rated	
366:							
Westbutte----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Lambring-----------	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop-------	15	Not rated		Not rated		Not rated	
367:							
Westbutte----------	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
367:							
Lambring	30	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Hard to reclaim	0.00
Rock outcrop	15	Not rated		Not rated		Not rated	
368:							
Westbutte	50	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Observation	40	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Clay >40 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Depth to bedrock 20 to 40 inches	0.16
						Slope 12 to 15 percent	0.16
						Rock fragment content	0.50
369:							
Westbutte	35	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock 20 to 40 inches	0.22
Rock outcrop	30	Not rated		Not rated		Not rated	
Pernty	25	Poor source		Poor source		Poor source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00	Slope >15 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00	Rock fragment content	0.00
						Depth to bedrock <20 inches	0.00
370:							
Widowspring	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		

Table 12.--Construction Materials--Continued

Map symbol and soil name	Pct. of map unit	Potential as source of gravel		Potential as source of sand		Potential as source of topsoil	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
371:							
Windybutte---------	85	Poor source		Poor source		Good source	
		Bottom layer not a source	0.00	Bottom layer not a source	0.00		
		Thickest layer not a source because of fines or thin layer	0.00	Thickest layer not a source	0.00		
372:							
Wolverine----------	85	Poor source		Good source		Poor source	
		Bottom layer not a source	0.00	Thickest layer possible source	0.70	Sand fractions >85 percent	0.00
		Thickest layer not a source because of fines or thin layer	0.00	Bottom layer possible source	0.75	Slope 8 to 12 percent	0.96
373:							
Denied access------	100	Not rated		Not rated		Not rated	

The potential as a source of gravel evaluates the content of coarse fragments more than 0.2 inch in diameter in the bottom layer or in the thickest layer of the soil. The potential as a source of sand evaluates the amount of sand and fine gravel in the thickest layer or in the bottom layer of the soil. The organic soil layers that have a Unified engineering class for peat (PT) are also evaluated. The potential as a source of topsoil evaluates certain soil properties at various depths, including calcium carbonates, percent clay, soil bulk density, percent sand, soil wetness, content of coarse fragments 0.2 to 3 inches in diameter, content of fragments more than 3 inches in diameter, organic matter content (OM), sodium content expressed as the sodium adsorption ratio (SAR), salinity expressed as mmhos/cm of electrical conductivity (EC), depth to bedrock, slope, and soil pH.

Table 13.--Water Management

(The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation. The numbers in the value columns range from 0.01 to 1.00. The larger the value, the greater the limitation. See text for further explanation of ratings in this table)

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
1:							
Actem	85	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	0.06		
		Slope	0.01				
2:							
Actem	85	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	0.06		
3:							
Actem	45	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	0.06		
		Slope	0.01				
Robson	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.03		
4:							
Alvodest	85	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Salinity	1.00	Salty water	1.00
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
5:							
Alvodest	50	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Salinity	1.00	Salty water	1.00
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Playas	35	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Salinity	1.00	Salty water	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
				Ponding	1.00		
6:							
Alyan	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
				Piping	0.63		
7:							
Anatone	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.47		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
8:							
Anatone, moist------	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Content of large stones	0.02		
Anatone----------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Content of large stones	0.06		
9:							
Anatone----------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.02		
Teguro----------	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.99		
Observation---------	20	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
10:							
Anatone, moist------	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.72	Seepage	0.38		
				Content of large stones	0.12		
Egyptcreek----------	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Seepage	0.72				
		Slope	0.72				
Rock outcrop--------	15	Very limited		Not rated		Not rated	
		Depth to bedrock	1.00				
		Slope	0.72				
11:							
Anatone, moist------	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.55	Seepage	0.38		
				Content of large stones	0.12		
Minam----------	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.04		
Rock outcrop--------	15	Not rated		Not rated		Not rated	
12:							
Anatone----------	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Content of large stones	0.47		
Teguro----------	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01				
Rock outcrop--------	20	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
13:							
Anatone	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Seepage	0.38		
				Content of large stones	0.12		
Westbutte	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.88	Content of large stones	0.96		
		Seepage	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
14:							
Anawalt	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.49		
15:							
Anawalt	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Piping	0.49		
Lonely	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.08	Piping	0.88		
		Seepage	0.04				
16:							
Anawalt	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.49		
Oreneva	25	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.54				
17:							
Anawalt	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.49		
Raz	40	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.99	Piping	1.00		
18:							
Ateron	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	1.00		
19:							
Ateron	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	1.00		
Rubble land	35	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
20:							
Ateron	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.21	Content of large stones	1.00		
Observation	25	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
				Content of large stones	0.01		
21:							
Atlow	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Content of large stones	0.18		
22:							
Atlow	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Content of large stones	0.18		
Rock outcrop	15	Not rated		Not rated		Not rated	
23:							
Atlow	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.18		
Rock outcrop	15	Not rated		Not rated		Not rated	
24:							
Atlow	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Content of large stones	0.18		
Skedaddle	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Content of large stones	0.96		
25:							
Ausmus	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Salinity	1.00	Salty water	1.00
				Piping	1.00	Depth to water	0.40
				Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	0.22	Cutbanks cave	0.10
26:							
Ausmus	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Salinity	1.00	Salty water	1.00
				Piping	1.00	Depth to water	0.40
				Depth to saturated zone	0.22	Slow refill	0.28
						Cutbanks cave	0.10
27:							
Baconcamp	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.21				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
28:							
Baconcamp	45	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.01				
Clamp	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.80		
29:							
Baconcamp	45	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Thin layer	0.70	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.69				
Clamp	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.80		
30:							
Baconcamp	45	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.70	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.69				
Clamp	25	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Content of large stones	0.93		
Rock outcrop	20	Not rated		Not rated		Not rated	
31:							
Baconcamp	70	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
Rock outcrop	15	Not rated		Not rated		Not rated	
32:							
Baconcamp	70	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.70	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.69				
Rock outcrop	15	Not rated		Not rated		Not rated	
33:							
Baconcamp	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.70	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.69				
Rock outcrop	30	Not rated		Not rated		Not rated	
Hackwood	15	Somewhat limited		Not limited		Very limited	
		Slope	0.88			Depth to water	1.00
		Seepage	0.72				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
34:							
Baconcamp	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.64				
Hapgood	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.59	Depth to water	1.00
		Slope	0.64				
		Depth to bedrock	0.33	Thin layer	0.34		
Rock outcrop	15	Not rated		Not rated		Not rated	
35:							
Baconcamp	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.97	Thin layer	0.70	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.69				
Krackle	30	Somewhat limited		Very limited		Very limited	
		Slope	0.97	Content of large stones	1.00	Depth to water	1.00
		Depth to bedrock	0.86				
		Seepage	0.04	Piping	0.88		
				Thin layer	0.86		
Rock outcrop	15	Not rated		Not rated		Not rated	
36:							
Berdugo	85	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
37:							
Berdugo	50	Very limited		Not limited		Very limited	
		Seepage	1.00			Depth to water	1.00
Catlow	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
38:							
Bigfrog	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00				
		Slope	0.24				
Brock	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00				
		Slope	0.24				
39:							
Bocker	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.03	Content of large stones	0.93		
Westbutte	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.03	Thin layer	0.98		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
40:							
Boravall	55	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks cave	0.10
				Salinity	1.00		
				Piping	1.00		
				Ponding	1.00		
Playas	30	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Salty water	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
				Ponding	1.00		
41:							
Borobey	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
42:							
Boulder Lake	85	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Ponding	1.00		
43:							
Boulder Lake	65	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Ponding	1.00		
Merlin	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
44:							
Boulder Lake	45	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Cutbanks cave	0.10
				Ponding	1.00		
Spangenburg	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.49	Depth to water	1.00
45:							
Brabble	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.77	Piping	0.88	Depth to water	1.00
				Thin layer	0.77		
		Seepage	0.72				
		Depth to bedrock	0.56				
		Slope	0.03				
Calderwood	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.03	Content of large stones	0.13		
46:							
Brace	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.81	Depth to water	1.00
		Depth to cemented pan	0.81				
		Depth to bedrock	0.66				
		Slope	0.01				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
46:							
Coztur	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		
				Content of large stones	0.01		
Rock outcrop	15	Not rated		Not rated		Not rated	
47:							
Brace	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.81	Depth to water	1.00
		Depth to cemented pan	0.81				
		Depth to bedrock	0.66				
		Slope	0.01				
Vergas	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.53	Depth to water	1.00
48:							
Bruncan, thick surface	50	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00				
Bruncan, thin surface	35	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	1.00	Piping	1.00		
49:							
Brunzell	90	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.17	Depth to water	1.00
50:							
Bucklake	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.83	Thin layer	0.83	Depth to water	1.00
		Slope	0.72				
		Seepage	0.04				
51:							
Bucklake	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.83	Thin layer	0.83	Depth to water	1.00
		Slope	0.50				
		Seepage	0.04				
Mahoon	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.26	Hard to pack	0.11		
Rubble land	20	Not rated		Not rated		Not rated	
52:							
Calderwood	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.03	Content of large stones	0.13		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
53:							
Calderwood	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.23		
McConnel	20	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00
54:							
Carryback	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.01	Hard to pack	0.05		
55:							
Carryback	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.01	Hard to pack	0.05		
56:							
Carryback	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.01	Hard to pack	0.05		
57:							
Carryback	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.01	Hard to pack	0.01		
58:							
Carryback, thin surface	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.01	Hard to pack	0.04		
Carryback, thick surface	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.01				
59:							
Carryback, thin surface	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.50	Hard to pack	0.05		
Carryback, south slopes	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.50	Hard to pack	0.01		
Carryback, north slopes	25	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.50	Hard to pack	0.01		
60:							
Carryback, south slopes	45	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.50				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
60:							
Carryback, north slopes	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.50				
61:							
Carryback	55	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
				Content of large stones	0.06		
				Hard to pack	0.05		
Pearlwise	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Seepage	0.72	Piping	0.99		
62:							
Carryback	45	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.82	Content of large stones	0.06		
				Hard to pack	0.05		
Pearlwise	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.82	Piping	0.99		
		Seepage	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
63:							
Carryback	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.24	Hard to pack	0.05		
Dickle	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.24	Piping	0.88		
64:							
Carvix	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
65:							
Clamp	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Content of large stones	0.80		
Baconcamp	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.41				
Hackwood	15	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.41				
66:							
Coztur	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Seepage	0.03		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
67:							
Crowcamp	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Cutbanks cave	1.00
				Piping	0.49	Slow refill	0.28
				Depth to saturated zone	0.46	Depth to water	0.24
68:							
Crowcamp	50	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.46	Slow refill	0.28
				Piping	0.44	Depth to water	0.24
Ausmus	20	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Salinity	1.00	Salty water	1.00
				Piping	1.00	Depth to water	0.40
				Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	0.22	Cutbanks cave	0.10
Poujade	15	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to water	0.38
				Depth to saturated zone	0.24	Slow refill	0.28
						Cutbanks cave	0.10
						Salty water	0.06
69:							
Davey	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
70:							
Davey	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
Oreanna	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.25	Depth to water	1.00
				Piping	0.02		
71:							
Defenbaugh	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
72:							
Deppy	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	1.00		
				Seepage	0.03		
73:							
Deppy	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	1.00		
				Seepage	0.03		
Tumtum	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.95		
				Seepage	0.03		
74:							
Dickle	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.88		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
75:							
Dixon	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.25	Depth to water	1.00
76:							
Dixon	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.40	Depth to water	1.00
				Seepage	0.25		
77:							
Dixon	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.25	Depth to water	1.00
78:							
Dixon	50	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Piping	0.40	Depth to water	1.00
				Seepage	0.25		
Droval	40	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Salty water	1.00
						Slow refill	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
				Ponding	1.00		
79:							
Dogmountain	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Seepage	0.75		
		Slope	0.01				
80:							
Doyn	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		
81:							
Doyn	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		
Merlin	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
82:							
Doyn	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Piping	1.00		
Arcia	25	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.04				
83:							
Drewsey	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
				Seepage	0.01		
84:							
Drewsey	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Slope	0.01	Seepage	0.01		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
85:							
Drewsey	35	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Slope	0.01	Seepage	0.01		
Torriorthents	30	Somewhat limited		Not rated		Not rated	
		Depth to bedrock	0.92				
		Slope	0.15				
Gumble	25	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.68		
86:							
Droval	85	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Salty water	1.00
						Slow refill	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
				Ponding	1.00		
87:							
Duff	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.33	Thin layer	0.34		
88:							
Duff	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.33	Thin layer	0.34		
		Slope	0.01				
Clamp	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.88		
				Content of large stones	0.40		
89:							
Duff	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Slope	0.50	Thin layer	0.34		
		Depth to bedrock	0.33				
Clamp	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Piping	0.88		
				Content of large stones	0.40		
90:							
Duff	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.33	Thin layer	0.34		
Hackwood	25	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.04				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
91:							
Edemaps	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.96	Thin layer	0.96	Depth to water	1.00
				Piping	0.38		
		Depth to bedrock	0.86				
		Seepage	0.04				
		Slope	0.01				
92:							
Edemaps	45	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.96	Thin layer	0.96	Depth to water	1.00
				Piping	0.16		
		Depth to bedrock	0.86				
		Seepage	0.04				
Carryback	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
				Hard to pack	0.05		
93:							
Enko	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.10	Depth to water	1.00
94:							
Enko	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.10	Depth to water	1.00
Catlow	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
95:							
Enko	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.10	Depth to water	1.00
		Slope	0.01				
Catlow	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
		Slope	0.01				
96:							
Enko	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.10	Depth to water	1.00
Catlow	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.90	Depth to water	1.00
		Slope	0.01	Seepage	0.21		
97:							
Erakatak	85	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.96	Content of large stones	0.48		
		Seepage	0.02				
98:							
Erakatak	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.96	Thin layer	0.96	Depth to water	1.00
		Slope	0.88	Content of large stones	0.02		
		Seepage	0.02				
Lambring	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Content of large stones	0.01	Depth to water	1.00
		Seepage	0.72				
Rock outcrop	10	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
99:							
Erakatak	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.96	Thin layer	0.96	Depth to water	1.00
		Slope	0.88	Content of large stones	0.02		
		Seepage	0.02				
Merlin	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.12	Content of large stones	0.01		
Westbutte	25	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Slope	0.88	Thin layer	0.98		
		Seepage	0.72				
100:							
Erakatak	65	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.96	Thin layer	0.96	Depth to water	1.00
		Slope	0.88	Content of large stones	0.19		
		Seepage	0.02				
Rock outcrop	20	Not rated		Not rated		Not rated	
101:							
Erakatak	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.96	Thin layer	0.96	Depth to water	1.00
		Slope	0.64	Content of large stones	0.19		
		Seepage	0.02				
Ninemile	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Hard to pack	0.20		
Hapgood	25	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.95	Depth to water	1.00
		Slope	0.64	Thin layer	0.34		
		Depth to bedrock	0.33				
102:							
Felcher	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Content of large stones	1.00	Depth to water	1.00
		Slope	0.50	Thin layer	0.99		
		Seepage	0.04				
103:							
Felcher	65	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.99	Content of large stones	0.85		
		Seepage	0.04				
Rock outcrop	20	Not rated		Not rated		Not rated	
104:							
Felcher	35	Somewhat limited		Very limited		Very limited	
		Slope	0.99	Content of large stones	1.00	Depth to water	1.00
		Depth to bedrock	0.99	Thin layer	0.99		
		Seepage	0.04				
Rock outcrop	30	Not rated		Not rated		Not rated	
Brezniak	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.99	Piping	0.12		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
105:							
Felcher	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.50	Content of large stones	0.57		
		Seepage	0.04				
Rock outcrop	30	Not rated		Not rated		Not rated	
Westbutte	25	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72	Thin layer	0.98		
		Slope	0.50				
106:							
Felcher	45	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.08	Content of large stones	0.85		
		Seepage	0.04				
Sagehen	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08				
107:							
Felcher	45	Very limited		Very limited		Very limited	
		Slope	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.99	Content of large stones	0.85		
		Seepage	0.04				
Sagehen	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Content of large stones	0.07		
108:							
Felcher	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.88	Content of large stones	0.57		
		Seepage	0.04				
Fitzwater	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Content of large stones	1.00	Depth to water	1.00
		Slope	0.88	Seepage	0.03		
		Depth to bedrock	0.01	Thin layer	0.01		
Rock outcrop	15	Not rated		Not rated		Not rated	
109:							
Felcher	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.41	Content of large stones	0.85		
		Seepage	0.04				
Pernty	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Piping	0.88		
				Content of large stones	0.26		
Ninemile	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.03	Hard to pack	0.29		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
110:							
Felcher	45	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.50	Content of large stones	0.85		
		Seepage	0.04				
Westbutte	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.50	Thin layer	0.98		
111:							
Final	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Salty water	0.78
				Piping	1.00	Cutbanks cave	0.10
				Salinity	0.50		
112:							
Fitzwater	45	Very limited		Very limited		Very limited	
		Seepage	1.00	Content of large stones	1.00	Depth to water	1.00
		Slope	0.50	Seepage	0.03		
		Depth to bedrock	0.01	Thin layer	0.01		
Hapgood, thick surface	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.59	Depth to water	1.00
		Slope	0.50	Thin layer	0.34		
		Depth to bedrock	0.33				
Hapgood, thin surface	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.89	Depth to water	1.00
		Slope	0.50	Thin layer	0.34		
		Depth to bedrock	0.33				
113:							
Fitzwater	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Content of large stones	1.00	Depth to water	1.00
		Slope	0.88	Seepage	0.03		
		Depth to bedrock	0.01	Thin layer	0.01		
Rock outcrop	25	Not rated		Not rated		Not rated	
114:							
Flank	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Seepage	0.19		
Lava flows	35	Not rated		Not rated		Not rated	
115:							
Fourwheel	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
				Hard to pack	0.09		
116:							
Fourwheel	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.50	Hard to pack	0.09		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
117:							
Freznik	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.69	Thin layer	0.70	Depth to water	1.00
				Piping	0.03		
118:							
Fury	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
119:							
Fury	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
120:							
Fury	55	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Degarmo	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Seepage	0.03	Slow refill	0.96
121:							
Fury	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Housefield	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
122:							
Fury	40	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Housefield	30	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
122:							
Skidoosprings	15	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Depth to cemented pan	0.42	Piping	1.00	Salty water	0.06
				Ponding	1.00		
				Thin layer	0.42		
				Seepage	0.06		
123:							
Fury	55	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Opie	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Salinity	1.00	Salty water	1.00
				Piping	1.00	Slow refill	0.28
				Ponding	1.00		
124:							
Fury	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Skidoosprings	25	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Depth to cemented pan	0.42	Piping	1.00	Salty water	0.06
				Ponding	1.00		
				Thin layer	0.42		
				Seepage	0.06		
Opie	20	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Salinity	1.00	Salty water	1.00
				Piping	1.00	Slow refill	0.28
				Ponding	1.00		
125:							
Fury	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Widowspring	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Piping	0.78	Depth to water	0.81
						Slow refill	0.28
						Cutbanks cave	0.10
126:							
Gaib	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
127:							
Gaib	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
Ateron	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	1.00		
128:							
Gaib	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88				
Rock outcrop	20	Not rated		Not rated		Not rated	
129:							
Gilispie	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.99		
Noname	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.98		
130:							
Gochea	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.04	Depth to water	1.00
131:							
Goldrun	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
Alvodest	30	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Salty water	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
132:							
Gradon	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.81	Thin layer	0.81		
				Seepage	0.03		
133:							
Guano	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.80	Thin layer	1.00	Depth to water	1.00
134:							
Gumble	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.68		
135:							
Gumble	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Piping	0.68		
136:							
Gumble	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.68		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
136:							
Mahoon	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.26	Hard to pack	0.11		
Cagle	25	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Thin layer	0.66	Depth to water	1.00
		Seepage	0.04	Piping	0.06		
		Depth to bedrock	0.03				
137:							
Hackwood	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.41				
138:							
Hackwood	50	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.41				
Baconcamp	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.41				
139:							
Hapgood	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Content of large stones	0.95	Depth to water	1.00
		Depth to bedrock	0.33	Thin layer	0.34		
140:							
Hart Camp	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.50	Thin layer	1.00	Depth to water	1.00
				Piping	1.00		
				Content of large stones	0.20		
141:							
Hart Camp	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.50	Thin layer	1.00	Depth to water	1.00
		Slope	0.21	Piping	1.00		
				Content of large stones	0.20		
142:							
Helphenstein	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.28
				Piping	1.00	Cutbanks cave	0.10
				Ponding	1.00	Salty water	0.01
Goldrun	35	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
143:							
Homefield	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
				Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00	Salty water	0.01
				Ponding	1.00		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
144:							
Housefield	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
145:							
Housefield	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
Doubleo	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.89		
				Seepage	0.01		
146:							
Icene	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Salinity	1.00	Salty water	1.00
				Piping	1.00	Slow refill	0.96
				Ponding	1.00	Depth to water	0.24
				Depth to saturated zone	0.46	Cutbanks cave	0.10
Playas	25	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Salty water	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
				Ponding	1.00		
147:							
Icene	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Salinity	1.00	Salty water	1.00
				Piping	1.00	Slow refill	0.96
				Depth to saturated zone	0.46	Depth to water	0.24
						Cutbanks cave	0.10
Playas	25	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
						Salty water	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
				Ponding	1.00		
148:							
Jesse Camp	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.04		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
149:							
Jimgreen	90	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
150:							
Jimgreen	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
Housefield	35	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Content of organic matter	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Depth to saturated zone	1.00		
				Piping	1.00		
				Ponding	1.00		
151:							
Kegler	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.61	Thin layer	0.61		
152:							
Kerrfield	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.77	Depth to water	1.00
		Depth to bedrock	0.06	Seepage	0.13		
		Slope	0.01	Piping	0.02		
153:							
Klicker	85	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.99	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Content of large stones	0.97		
		Seepage	0.04				
154:							
Klicker	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Slope	0.28				
		Seepage	0.04	Thin layer	0.98		
155:							
Krackle, north slopes	55	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.86	Content of large stones	1.00	Depth to water	1.00
		Slope	0.50				
		Seepage	0.04	Piping	0.94		
				Thin layer	0.86		
Krackle, south slopes	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.86	Content of large stones	1.00	Depth to water	1.00
		Slope	0.50				
		Seepage	0.04	Piping	0.94		
				Thin layer	0.86		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
156:							
Krackle	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.86	Content of large stones	1.00	Depth to water	1.00
		Slope	0.12	Piping	0.94		
		Seepage	0.04	Thin layer	0.86		
Baconcamp	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.06				
Rock outcrop	15	Not rated		Not rated		Not rated	
157:							
Krackle	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.86	Content of large stones	1.00	Depth to water	1.00
		Slope	0.06	Piping	0.94		
		Seepage	0.04	Thin layer	0.86		
Baconcamp	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.06				
Rock outcrop	15	Not rated		Not rated		Not rated	
158:							
Krackle	70	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.86	Content of large stones	1.00	Depth to water	1.00
		Slope	0.82	Piping	0.88		
		Seepage	0.04	Thin layer	0.86		
Rock outcrop	15	Not rated		Not rated		Not rated	
159:							
Krackle	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.86	Content of large stones	1.00	Depth to water	1.00
		Slope	0.41	Piping	0.88		
		Seepage	0.04	Thin layer	0.86		
Baconcamp	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.69				
		Slope	0.41				
Hackwood	20	Somewhat limited		Not limited		Very limited	
		Seepage	0.72			Depth to water	1.00
		Slope	0.41				
160:							
Ladycomb	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.06	Piping	0.82		
161:							
Lambranch	85	Somewhat limited		Not limited		Very limited	
		Seepage	0.54			Depth to water	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
162:							
Lambring	40	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Content of large stones	0.25	Depth to water	1.00
		Seepage	0.72				
Egyptcreek	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.88	Content of large stones	0.07		
		Seepage	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
163:							
Lambring, thick surface	40	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.01	Depth to water	1.00
		Seepage	0.72				
Lambring, thin surface	30	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.01	Depth to water	1.00
		Seepage	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
164:							
Lambring	50	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Content of large stones	0.47	Depth to water	1.00
		Seepage	0.72				
Rubble land	35	Not rated		Not rated		Not rated	
165:							
Langslet	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	0.86	Slow refill	0.96
						Cutbanks cave	0.10
						Depth to water	0.06
166:							
Lava flows	85	Not rated		Not rated		Not rated	
167:							
Lava flows	55	Not rated		Not rated		Not rated	
Flank	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Seepage	0.19		
168:							
Lawen	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Seepage	0.01	Depth to water	1.00
169:							
Leathers	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.82		
				Salinity	0.12		
170:							
Leathers	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.82		
				Salinity	0.12		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
171:							
Leemorris	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.86	Thin layer	0.86	Depth to water	1.00
		Seepage	0.04				
Buckwilder	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.93	Hard to pack	1.00	Depth to water	1.00
				Thin layer	0.93		
172:							
Leemorris	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.86	Thin layer	0.86	Depth to water	1.00
		Slope	0.28				
		Seepage	0.04				
Buckwilder	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.93	Hard to pack	1.00	Depth to water	1.00
		Slope	0.28	Thin layer	0.93		
173:							
Legler	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Piping	1.00	Depth to water	1.00
174:							
Locane	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.03	Content of large stones	0.09		
175:							
Lolak	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
176:							
Lolak	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
Ausmus	35	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Salinity	1.00	Salty water	1.00
				Piping	1.00	Depth to water	0.40
				Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	0.22	Cutbanks cave	0.10
177:							
Lonely	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Seepage	0.04	Piping	0.88		
Doyn	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.02	Piping	1.00		
178:							
Lonely	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.10	Piping	0.88		
		Seepage	0.04				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
178:							
Robson	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.07		
179:							
Longcreek	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.72	Content of large stones	0.37		
				Piping	0.25		
Cleavage	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.72	Seepage	0.06		
180:							
Longcreek	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Content of large stones	0.37		
				Piping	0.25		
Rock outcrop	10	Not rated		Not rated		Not rated	
181:							
Loupence	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.90
				Seepage	0.04	Cutbanks cave	0.10
182:							
Madeline	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Piping	0.03		
183:							
Madeline	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Piping	0.03		
184:							
Madeline	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.28	Piping	0.01		
Ninemile	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.28	Hard to pack	0.20		
185:							
Madeline	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Piping	0.03		
Rock outcrop	20	Not rated		Not rated		Not rated	
186:							
Mahoon	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.26	Thin layer	0.96	Depth to water	1.00
		Slope	0.01	Hard to pack	0.11		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
187:							
Mahoon	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.26	Thin layer	0.96	Depth to water	1.00
		Slope	0.01	Hard to pack	0.11		
Brezniak	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.12		
Longcreek	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
188:							
Mahoon	65	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.26	Thin layer	0.96	Depth to water	1.00
		Slope	0.03	Hard to pack	0.11		
Cagle	20	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.50	Thin layer	0.66	Depth to water	1.00
		Seepage	0.04	Piping	0.06		
		Depth to bedrock	0.03				
189:							
Mahoon	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.26	Thin layer	0.96	Depth to water	1.00
		Slope	0.01	Hard to pack	0.11		
Risley	35	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.01	Piping	0.04		
		Slope	0.01				
190:							
Mahoon	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.26	Thin layer	0.96	Depth to water	1.00
		Slope	0.21	Hard to pack	0.11		
Cotant	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.74	Thin layer	1.00	Depth to water	1.00
		Slope	0.21	Hard to pack	0.01		
191:							
Mcbain	45	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Salinity	1.00	Depth to water	0.68
				Piping	1.00	Slow refill	0.28
				Depth to saturated zone	0.02	Cutbanks cave	0.10
						Salty water	0.06
Ausmus	40	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Salinity	1.00	Salty water	1.00
				Piping	1.00	Depth to water	0.40
				Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	0.22	Cutbanks cave	0.10
192:							
McConnel	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.08	Depth to water	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
193:							
Merlin	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.01		
194:							
Merlin, very stony	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Merlin, very cobbly	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
195:							
Merlin	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Ateron	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	1.00		
196:							
Merlin	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Ateron	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	1.00		
Rubble land	15	Not rated		Not rated		Not rated	
197:							
Merlin	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Ateron	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	1.00		
Ticino	25	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.88	Thin layer	0.95	Depth to water	1.00
		Seepage	0.72				
		Slope	0.01				
198:							
Merlin	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
198:							
Erakatak	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.96	Thin layer	0.96	Depth to water	1.00
		Seepage	0.02	Content of large stones	0.02		
		Slope	0.01				
Teguro	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01				
199:							
Merlin	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Observation	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
200:							
Merlin	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Content of large stones	0.01		
Observation	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.50	Content of large stones	0.01		
201:							
Merlin	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.01		
Rubble land	15	Not rated		Not rated		Not rated	
202:							
Merlin	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
Teguro	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
203:							
Merlin	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Teguro	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.99		
				Content of large stones	0.03		
204:							
Mesman	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Salinity	1.00	Depth to water	1.00
				Piping	1.00		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
205:							
Mesman	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Salinity	1.00	Depth to water	1.00
				Piping	1.00		
206:							
Mesman	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Salinity	1.00	Depth to water	1.00
				Piping	1.00		
Norad	40	Not limited		Somewhat limited		Very limited	
				Piping	0.48	Depth to water	1.00
						Slow refill	1.00
207:							
Middlebox	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.70	Depth to water	1.00
		Depth to bedrock	0.04				
		Slope	0.01				
208:							
Middlebox, north slopes	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.70	Depth to water	1.00
		Slope	0.41				
		Depth to bedrock	0.04				
Middlebox, south slopes	30	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.70	Depth to water	1.00
		Slope	0.41				
		Depth to bedrock	0.04				
209:							
Minam	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.04		
210:							
Minam	60	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
				Seepage	0.04		
Welch	25	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.96
						Cutbanks cave	0.10
				Piping	0.63		
211:							
Modoc	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.96	Thin layer	0.96		
				Seepage	0.38		
212:							
Morfitt	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Depth to water	1.00
				Piping	0.90		
213:							
Morganhills	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.58	Thin layer	1.00	Depth to water	1.00
				Seepage	0.04		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
214:							
Morganhills, more than 12 percent slopes	50	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.58	Thin layer	1.00	Depth to water	1.00
		Slope	0.24	Seepage	0.04		
Morganhills, less than 12 percent slopes	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.58	Thin layer	1.00	Depth to water	1.00
				Seepage	0.04		
215:							
Mound	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.04	Content of large stones	1.00	Depth to water	1.00
		Slope	0.01	Thin layer	0.04		
216:							
Nevador	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
217:							
Ninemile	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.20		
218:							
Ninemile	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Hard to pack	0.29		
219:							
Ninemile	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.29		
220:							
Ninemile	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.20		
Carvix	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
221:							
Ninemile	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Hard to pack	0.29		
Doyn	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		
222:							
Ninemile	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.20		
Edemaps	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to cemented pan	0.96	Thin layer	0.96	Depth to water	1.00
		Depth to bedrock	0.86	Piping	0.16		
		Seepage	0.04				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
223:							
Ninemile	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.29		
Madeline	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.01		
224:							
Ninemile	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Hard to pack	0.29		
Pearlwise	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Seepage	0.72	Piping	0.99		
		Slope	0.41				
225:							
Ninemile	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.20		
Reluctan	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.95	Piping	0.99	Depth to water	1.00
		Seepage	0.04	Thin layer	0.95		
226:							
Ninemile	50	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Hard to pack	0.20		
Reluctan	20	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.95	Piping	0.99	Depth to water	1.00
		Slope	0.04	Thin layer	0.95		
		Seepage	0.04				
Rubble land	15	Not rated		Not rated		Not rated	
227:							
Ninemile	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Hard to pack	0.20		
Rock outcrop	15	Not rated		Not rated		Not rated	
228:							
Ninemile	65	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Hard to pack	0.20		
Rubble land	20	Not rated		Not rated		Not rated	
229:							
Ninemile	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.20		
Westbutte	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72	Thin layer	0.98		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
230:							
Ninemile, very cobbly	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Hard to pack	0.29		
Westbutte	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.04	Thin layer	0.98		
Ninemile, extremely stony	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.04	Hard to pack	0.20		
				Content of large stones	0.01		
231:							
Ninemile, very cobbly	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.29		
Ninemile, extremely stony	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Hard to pack	0.20		
				Content of large stones	0.01		
232:							
Ninemile	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Hard to pack	0.29		
Felcher	20	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.28	Content of large stones	0.28		
		Seepage	0.04				
233:							
Noname	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.88		
Dickle	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.88		
234:							
Noname	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Piping	0.98		
Duff	30	Very limited		Very limited		Very limited	
		Slope	1.00	Piping	1.00	Depth to water	1.00
		Seepage	0.72	Thin layer	0.34		
		Depth to bedrock	0.33				
Rock outcrop	20	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
235:							
Norad	85	Not limited		Somewhat limited		Very limited	
				Piping	0.48	Depth to water	1.00
						Slow refill	1.00
236:							
Norad	45	Not limited		Somewhat limited		Very limited	
				Piping	0.48	Depth to water	1.00
						Slow refill	1.00
Spangenburg	40	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Depth to water	1.00
				Piping	0.49		
237:							
Nuss	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Piping	1.00		
238:							
Nuss	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Piping	1.00		
Merlin	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Content of large stones	0.01		
239:							
Nuss	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Piping	1.00		
Rock outcrop	30	Not rated		Not rated		Not rated	
240:							
Observation	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
241:							
Observation	65	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
Rock outcrop	20	Not rated		Not rated		Not rated	
242:							
Observation	45	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
Royst	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Content of large stones	1.00	Depth to water	1.00
		Slope	0.01	Thin layer	0.99		
				Piping	0.35		
Merlin	15	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
243:							
Observation	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
Teguro	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.99		
				Content of large stones	0.06		
244:							
Observation	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.72	Content of large stones	0.01		
Lambring	25	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Content of large stones	0.25	Depth to water	1.00
		Slope	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
245:							
Olac	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.91		
Atlow	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.18		
246:							
Opie	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Cutbanks cave	1.00
						Salty water	1.00
				Salinity	1.00	Slow refill	0.28
				Piping	1.00		
				Ponding	1.00		
247:							
Oreneva	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Seepage	0.54				
248:							
Outerkirk	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
				Piping	0.02		
249:							
Outerkirk	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.04	Depth to water	1.00
				Piping	0.02		
250:							
Outerkirk	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.10	Depth to water	1.00
				Piping	0.02		
Defenbaugh	30	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
251:							
Ozamis	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.54	Depth to saturated zone	1.00	Slow refill	0.28
				Ponding	1.00	Cutbanks cave	0.10
				Piping	0.89		
252:							
Pearlwise	85	Somewhat limited		Very limited		Very limited	
		Slope	0.99	Piping	1.00	Depth to water	1.00
		Depth to bedrock	0.99	Thin layer	0.99		
		Seepage	0.72				
253:							
Pernty	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.88		
				Content of large stones	0.08		
254:							
Pernty	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Piping	0.88		
				Content of large stones	0.08		
255:							
Pernty	85	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Piping	0.88		
				Content of large stones	0.26		
256:							
Pernty	60	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Piping	0.88		
				Content of large stones	0.08		
Rock outcrop	25	Not rated		Not rated		Not rated	
257:							
Pernty	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Piping	0.88		
				Content of large stones	0.08		
Westbutte	25	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.41	Thin layer	0.98		
Ninemile	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.41	Hard to pack	0.29		
258:							
Pits	100	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
259:							
Playas	95	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Salinity	1.00	Salty water	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
				Ponding	1.00		
260:							
Playas	60	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Slow refill	1.00
				Salinity	1.00	Salty water	1.00
				Hard to pack	1.00	Cutbanks cave	0.10
				Ponding	1.00		
Thenarrows	25	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.10		
261:							
Poall	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Piping	0.74	Depth to water	1.00
		Slope	0.01				
262:							
Poall	50	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Piping	0.74	Depth to water	1.00
Gumble	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.03	Piping	0.68		
263:							
Pomerening	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.13	Depth to water	1.00
		Slope	0.01				
264:							
Pomerening	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.13	Depth to water	1.00
		Slope	0.01				
Flank	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Seepage	0.19		
Lava flows	20	Not rated		Not rated		Not rated	
265:							
Porterfield	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.69	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		
266:							
Porterfield	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.69	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Piping	1.00		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
267:							
Porterfield	50	Somewhat limited		Very limited		Very limited	
		Slope	0.88	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.69	Piping	1.00		
Tincan	20	Somewhat limited		Very limited		Very limited	
		Slope	0.88	Thin layer	1.00	Depth to water	1.00
		Depth to bedrock	0.61	Piping	1.00		
Rock outcrop	15	Not rated		Not rated		Not rated	
268:							
Poujade	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to water	0.38
				Depth to saturated zone	0.24	Slow refill	0.28
						Cutbanks cave	0.10
						Salty water	0.06
269:							
Poujade	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to water	0.38
				Depth to saturated zone	0.24	Slow refill	0.28
						Cutbanks cave	0.10
						Salty water	0.06
270:							
Poujade	50	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Piping	1.00	Depth to water	0.38
				Depth to saturated zone	0.24	Slow refill	0.28
						Cutbanks cave	0.10
						Salty water	0.06
Ausmus	35	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Salinity	1.00	Salty water	1.00
				Piping	1.00	Depth to water	0.40
				Ponding	1.00	Slow refill	0.28
				Depth to saturated zone	0.22	Cutbanks cave	0.10
271:							
Raz	85	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	1.00		
		Depth to bedrock	0.99				
272:							
Raz	50	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	1.00		
		Depth to bedrock	0.99				
		Slope	0.01				
Brace	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.81	Thin layer	0.81		
		Depth to bedrock	0.66				
		Slope	0.01				
273:							
Raz	50	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	1.00		
		Depth to bedrock	0.99				
		Slope	0.01				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
273:							
Brace	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Depth to water	1.00
		Depth to cemented pan	0.81	Thin layer	0.81		
		Depth to bedrock	0.66				
		Slope	0.01				
274:							
Reallis	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.05	Depth to water	1.00
275:							
Reallis	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Seepage	0.05	Depth to water	1.00
276:							
Reese	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Depth to saturated zone	1.00	Salty water	1.00
						Slow refill	0.28
				Salinity	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
277:							
Reluctan	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.95	Piping	0.99	Depth to water	1.00
		Seepage	0.04	Thin layer	0.95		
		Slope	0.01				
278:							
Reluctan	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.95	Piping	0.99	Depth to water	1.00
		Seepage	0.04	Thin layer	0.95		
		Slope	0.01				
279:							
Riddleranch	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.93	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.72	Thin layer	0.93		
Lambring	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Content of large stones	0.25	Depth to water	1.00
		Slope	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
280:							
Riddleranch	50	Somewhat limited		Very limited		Very limited	
		Slope	0.97	Content of large stones	1.00	Depth to water	1.00
		Depth to bedrock	0.93				
		Seepage	0.72	Thin layer	0.93		
Rock outcrop	35	Not rated		Not rated		Not rated	
281:							
Rinconflat	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Content of large stones	0.05	Depth to water	1.00
				Seepage	0.04		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
282:							
Rio King	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.81
				Seepage	0.03	Cutbanks cave	0.10
283:							
Rio King	55	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.81
				Seepage	0.03	Cutbanks cave	0.10
Droval	35	Not limited		Very limited		Very limited	
				Depth to saturated zone	1.00	Salty water	1.00
						Slow refill	1.00
				Salinity	1.00	Cutbanks cave	0.10
				Hard to pack	1.00		
				Ponding	1.00		
284:							
Risley	45	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.01	Piping	0.04		
		Slope	0.01				
Gumble	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	0.68		
285:							
Risley	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Thin layer	0.52	Depth to water	1.00
		Slope	0.02	Piping	0.02		
		Depth to bedrock	0.01				
Gumble	25	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.02	Piping	0.68		
Torriorthents	20	Somewhat limited		Not rated		Not rated	
		Depth to bedrock	0.92				
		Slope	0.02				
286:							
Risley	60	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Thin layer	0.52	Depth to water	1.00
		Depth to bedrock	0.01	Piping	0.04		
		Slope	0.01				
Rock outcrop	25	Not rated		Not rated		Not rated	
287:							
Robson	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Content of large stones	0.01		
Anawalt	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	0.61		
288:							
Robson	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.12	Content of large stones	0.07		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
288:							
Fourwheel	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
				Hard to pack	0.18		
289:							
Robson	55	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.02	Content of large stones	0.07		
Felcher	30	Somewhat limited		Very limited		Very limited	
		Slope	0.99	Thin layer	0.99	Depth to water	1.00
		Depth to bedrock	0.99	Content of large stones	0.57		
		Seepage	0.04				
290:							
Roca	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.41	Content of large stones	0.04		
291:							
Rock outcrop	60	Not rated		Not rated		Not rated	
Rubble land	30	Not rated		Not rated		Not rated	
292:							
Rock outcrop	50	Very limited		Not rated		Not rated	
		Depth to bedrock	1.00				
		Slope	1.00				
Baconcamp	35	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.70	Depth to water	1.00
		Seepage	0.72				
		Depth to bedrock	0.69				
293:							
Royst	65	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.99	Content of large stones	1.00	Depth to water	1.00
		Slope	0.01	Thin layer	0.99		
				Piping	0.35		
Merlin	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
294:							
Rubble land	35	Not rated		Not rated		Not rated	
Nuss	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Piping	1.00		
Ateron	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	1.00		
295:							
Sagehen	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
295:							
Rock outcrop	10	Not rated		Not rated		Not rated	
296:							
Sagehen	75	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00				
Rock outcrop	10	Not rated		Not rated		Not rated	
297:							
Sandgap	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.07	Depth to water	1.00
298:							
Sandgap	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.07	Depth to water	1.00
299:							
Seharney	85	Very limited		Very limited		Very limited	
		Depth to cemented pan	1.00	Thin layer	1.00	Depth to water	1.00
				Piping	1.00		
		Depth to bedrock	0.98	Content of large stones	0.05		
300:							
Skedaddle	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Content of large stones	0.81		
Atlow	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Content of large stones	0.18		
Rock outcrop	15	Not rated		Not rated		Not rated	
301:							
Skedaddle	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.81		
Atlow	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.18		
Rock outcrop	15	Not rated		Not rated		Not rated	
302:							
Skedaddle	70	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	1.00	Content of large stones	0.81		
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
303:							
Skedaddle, south slopes	45	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.17		
Skedaddle, north slopes	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.81		
304:							
Skidoosprings	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Depth to cemented pan	0.42	Piping	1.00	Salty water	0.06
				Ponding	1.00		
				Thin layer	0.42		
				Seepage	0.06		
305:							
Skidoosprings	85	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Depth to cemented pan	0.42	Piping	1.00	Salty water	0.06
				Thin layer	0.42		
				Seepage	0.06		
306:							
Skunkfarm	65	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.02		
Cumulic Haploxerolls	20	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Ponding	1.00	Depth to water	0.25
				Depth to saturated zone	0.43	Cutbanks cave	0.10
307:							
Skunkfarm	45	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.02		
Doubleo	40	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.89		
				Seepage	0.01		
308:							
Skunkfarm	35	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.02		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
308:							
Mcbain	30	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Salinity	1.00	Depth to water	0.68
				Piping	1.00	Slow refill	0.28
				Depth to saturated zone	0.02	Cutbanks cave	0.10
						Salty water	0.06
Doubleo	20	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.89		
				Seepage	0.01		
309:							
Skunkfarm	60	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.02		
Skidoosprings	25	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	0.10
		Depth to cemented pan	0.42	Piping	1.00	Salty water	0.06
				Ponding	1.00		
				Thin layer	0.42		
				Seepage	0.06		
310:							
Spangenburg	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.45	Depth to water	1.00
311:							
Spangenburg	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.86	Depth to water	1.00
312:							
Spangenburg	85	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Piping	0.86	Depth to water	1.00
313:							
Srednic	60	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.96	Depth to water	1.00
		Depth to cemented pan	0.96				
		Depth to bedrock	0.86				
		Slope	0.01				
Aval	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Seepage	0.05		
314:							
Stampede	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.99	Depth to water	1.00
		Depth to cemented pan	0.99	Piping	0.31		
				Seepage	0.03		
315:							
Swaler	85	Not limited		Not limited		Very limited	
						Depth to water	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
316:							
Swaler	70	Not limited		Not limited		Very limited Depth to water	1.00
Swalesilver	20	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.23	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
317:							
Swalesilver	85	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Ponding Piping	1.00 1.00 0.23	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
318:							
Swalesilver	85	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Piping	1.00 0.23	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
319:							
Swalesilver	85	Somewhat limited Seepage	0.04	Very limited Depth to saturated zone Piping	1.00 0.23	Somewhat limited Slow refill Cutbanks cave	0.28 0.10
320:							
Teguro	85	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer Piping	1.00 0.99	Very limited Depth to water	1.00
321:							
Teguro	90	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer Piping Content of large stones	1.00 0.99 0.06	Very limited Depth to water	1.00
322:							
Teguro	85	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer Piping Content of large stones	1.00 0.99 0.03	Very limited Depth to water	1.00
323:							
Teguro	45	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer	1.00	Very limited Depth to water	1.00
Anatone, moist	40	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer Content of large stones	1.00 0.01	Very limited Depth to water	1.00
324:							
Teguro	55	Very limited Depth to bedrock Slope	1.00 0.01	Very limited Thin layer Piping Content of large stones	1.00 0.99 0.06	Very limited Depth to water	1.00

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
324:							
Ateron	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	1.00		
325:							
Thenarrows	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.10		
Duckclub	40	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Slow refill	0.96
						Depth to water	0.25
				Seepage	0.02	Salty water	0.01
326:							
Thenarrows	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.10		
Duckclub	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Slow refill	0.96
						Depth to water	0.25
				Seepage	0.02	Salty water	0.01
Dentdraw	20	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.06		
327:							
Thenarrows	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Ponding	1.00		
				Seepage	0.10		
Duckclub	35	Very limited		Very limited		Very limited	
		Seepage	1.00	Piping	1.00	Cutbanks cave	1.00
				Depth to saturated zone	0.43	Slow refill	0.96
						Depth to water	0.25
				Seepage	0.02	Salty water	0.01
Sandgap	15	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.07	Depth to water	1.00
328:							
Ticino	45	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.88	Piping	0.99	Depth to water	1.00
		Seepage	0.72	Thin layer	0.95		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
328:							
Merlin	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
329:							
Ticino	60	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.88	Thin layer	0.95	Depth to water	1.00
		Seepage	0.72				
		Slope	0.01				
Observation	25	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
330:							
Ticino	65	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.88	Piping	0.99	Depth to water	1.00
		Seepage	0.72	Thin layer	0.95		
		Slope	0.01				
Rock outcrop	20	Not rated		Not rated		Not rated	
331:							
Toll	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
332:							
Toll	45	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.64	Depth to water	1.00
Nevador	40	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.03	Depth to water	1.00
333:							
Torriorthents	50	Somewhat limited		Not rated		Not rated	
		Depth to bedrock	0.92				
		Slope	0.10				
Gumble	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.61	Thin layer	1.00	Depth to water	1.00
		Slope	0.10	Piping	0.68		
334:							
Tumtum	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.95		
				Seepage	0.03		
335:							
Tumtum	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.95		
				Seepage	0.03		
336:							
Turpin	85	Not limited		Very limited		Very limited	
				Piping	1.00	Depth to water	1.00
				Ponding	1.00		
				Salinity	0.50		
337:							
Vanwyper	65	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Thin layer	0.98	Depth to water	1.00
		Depth to bedrock	0.98	Content of large stones	0.36		
		Seepage	0.04				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
337:							
Rock outcrop	20	Not rated		Not rated		Not rated	
338:							
Vergas	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.53	Depth to water	1.00
339:							
Vil	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	1.00		
				Seepage	0.04		
		Slope	0.01				
340:							
Vining	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.88	Depth to water	1.00
		Depth to bedrock	0.88	Seepage	0.03		
		Slope	0.01				
341:							
Vining	55	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Thin layer	0.88	Depth to water	1.00
		Depth to bedrock	0.88	Seepage	0.03		
		Slope	0.08				
Tuffo	30	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.92	Thin layer	1.00	Depth to water	1.00
		Slope	0.08	Seepage	0.01		
342:							
Vitale	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.95	Thin layer	0.95	Depth to water	1.00
		Seepage	0.04	Content of large stones	0.25		
		Slope	0.01				
343:							
Vitale	50	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.95	Thin layer	0.95	Depth to water	1.00
		Seepage	0.04	Content of large stones	0.20		
		Slope	0.01				
Merlin	35	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
344:							
Vitale	35	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.95	Thin layer	0.95	Depth to water	1.00
		Seepage	0.04	Content of large stones	0.04		
		Slope	0.01				
Merlin	30	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
Doyn	20	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.01	Piping	1.00		

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
345:							
Vitale	60	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.95	Thin layer	0.95	Depth to water	1.00
		Seepage	0.04	Content of large stones	0.20		
		Slope	0.01				
Observation	30	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01				
346:							
Vitale	65	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.95	Thin layer	0.95	Depth to water	1.00
		Slope	0.88	Content of large stones	0.25		
		Seepage	0.04				
Rock outcrop	20	Not rated		Not rated		Not rated	
347:							
Voltage	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
348:							
Voltage	60	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
Crowcamp	25	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Ponding	1.00	Cutbanks cave	1.00
				Piping	0.49	Slow refill	0.28
				Depth to saturated zone	0.46	Depth to water	0.24
349:							
Voltage	45	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
Crowcamp	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Depth to saturated zone	0.46	Cutbanks cave	1.00
				Piping	0.44	Slow refill	0.28
						Depth to water	0.24
350:							
Voltage	65	Somewhat limited		Very limited		Very limited	
		Seepage	0.72	Piping	1.00	Depth to water	1.00
Widowspring	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Piping	0.78	Depth to water	0.81
						Slow refill	0.28
						Cutbanks cave	0.10
351:							
Wagontire	85	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.13		
		Slope	0.01				
352:							
Wagontire	55	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	0.13		
		Slope	0.01				

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
352:							
Vil	30	Very limited		Very limited		Very limited	
		Seepage	1.00	Thin layer	1.00	Depth to water	1.00
		Depth to cemented pan	1.00	Piping	1.00		
				Seepage	0.04		
		Slope	0.01				
353:							
Waspo	45	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.26	Hard to pack	1.00	Depth to water	1.00
				Thin layer	0.96		
Poall	40	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.04	Piping	0.74	Depth to water	1.00
354:							
Water	100	Not rated		Not rated		Not rated	
355:							
Welch	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.71		
356:							
Welch	85	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Ponding	1.00		
				Piping	0.71		
357:							
Welch	40	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	1.00	Slow refill	0.28
						Cutbanks cave	0.10
				Piping	0.95		
Roschene	25	Somewhat limited		Very limited		Somewhat limited	
		Seepage	0.04	Piping	1.00	Slow refill	0.96
						Depth to water	0.81
						Cutbanks cave	0.10
Cumulic Haploxerolls	20	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.43	Depth to water	0.25
						Cutbanks cave	0.10
358:							
Wenas	50	Very limited		Very limited		Very limited	
		Seepage	1.00	Depth to saturated zone	1.00	Cutbanks cave	1.00
				Piping	1.00		
				Seepage	0.10		
Loupence	25	Very limited		Very limited		Somewhat limited	
		Seepage	1.00	Piping	1.00	Depth to water	0.90
				Seepage	0.04	Cutbanks cave	0.10
Cumulic Haploxerolls	15	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Depth to saturated zone	0.43	Depth to water	0.25
						Cutbanks cave	0.10

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
359:							
Westbutte	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.72	Thin layer	0.98		
360:							
Westbutte	85	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.03	Thin layer	0.98		
361:							
Westbutte	45	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Slope	0.88				
		Seepage	0.72	Thin layer	0.98		
Bocker	40	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.88	Content of large stones	0.93		
362:							
Westbutte	40	Very limited		Very limited		Very limited	
		Slope	1.00	Content of large stones	1.00	Depth to water	1.00
		Depth to bedrock	0.98				
		Seepage	0.72	Thin layer	0.98		
Lambring	25	Very limited		Somewhat limited		Very limited	
		Slope	1.00	Content of large stones	0.20	Depth to water	1.00
		Seepage	0.72				
Rock outcrop	20	Not rated		Not rated		Not rated	
363:							
Westbutte	75	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Slope	0.88				
		Seepage	0.72	Thin layer	0.98		
Rock outcrop	15	Not rated		Not rated		Not rated	
364:							
Westbutte	65	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Slope	0.88				
		Seepage	0.72	Thin layer	0.98		
Rock outcrop	20	Not rated		Not rated		Not rated	
365:							
Westbutte	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.88	Content of large stones	0.96		
		Seepage	0.72				
Lambring	35	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Content of large stones	0.25	Depth to water	1.00
		Seepage	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	

Table 13.--Water Management--Continued

Map symbol and soil name	Pct. of map unit	Pond reservoir areas		Embankments, dikes, and levees		Aquifer-fed excavated ponds	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
366:							
Westbutte	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.98	Thin layer	0.98	Depth to water	1.00
		Slope	0.88	Content of large stones	0.96		
		Seepage	0.72				
Lambring	30	Somewhat limited		Somewhat limited		Very limited	
		Slope	0.88	Content of large stones	0.25	Depth to water	1.00
		Seepage	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
367:							
Westbutte	40	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.72	Thin layer	0.98		
Lambring	30	Somewhat limited		Somewhat limited		Very limited	
		Seepage	0.72	Content of large stones	0.25	Depth to water	1.00
		Slope	0.72				
Rock outcrop	15	Not rated		Not rated		Not rated	
368:							
Westbutte	50	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.50	Thin layer	0.98		
Observation	40	Somewhat limited		Somewhat limited		Very limited	
		Depth to bedrock	0.99	Thin layer	0.99	Depth to water	1.00
		Slope	0.01	Content of large stones	0.01		
369:							
Westbutte	35	Somewhat limited		Very limited		Very limited	
		Depth to bedrock	0.98	Content of large stones	1.00	Depth to water	1.00
		Seepage	0.72				
		Slope	0.50	Thin layer	0.98		
Rock outcrop	30	Not rated		Not rated		Not rated	
Pernty	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Thin layer	1.00	Depth to water	1.00
		Slope	0.50	Content of large stones	0.08		
370:							
Widowspring	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Seepage	0.72	Piping	0.78	Depth to water	0.81
						Slow refill	0.28
						Cutbanks cave	0.10
371:							
Windybutte	85	Somewhat limited		Very limited		Very limited	
		Seepage	0.04	Piping	1.00	Depth to water	1.00
372:							
Wolverine	85	Very limited		Somewhat limited		Very limited	
		Seepage	1.00	Seepage	0.75	Depth to water	1.00
373:							
Denied access	100	Not rated		Not rated		Not rated	

Table 14.--Engineering Index Properties

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
1:												
Actem----------	0-2	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	15-40	75-95	65-90	55-85	45-70	25-35	5-10
	2-7	Clay, gravelly clay loam, gravelly clay	CL	A-7	0	0-15	75-100	60-100	60-100	50-80	40-50	15-25
	7-15	Clay loam, clay, cobbly clay loam	CL	A-7	0	0-15	85-100	70-100	70-100	50-80	40-50	15-25
	15-20	Indurated			---	---	---	---	---	---	---	---
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---
2:												
Actem----------	0-2	Extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	45-65	60-80	40-70	35-65	30-50	25-35	5-10
	2-7	Clay, gravelly clay loam, gravelly clay	CL	A-7	0	0-15	75-100	60-100	60-100	50-80	40-50	15-25
	7-15	Clay loam, clay, cobbly clay loam	CL	A-7	0	0-15	85-100	70-100	70-100	50-80	40-50	15-25
	15-20	Indurated			---	---	---	---	---	---	---	---
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---
3:												
Actem----------	0-2	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	15-40	75-95	65-90	55-85	45-70	25-35	5-10
	2-7	Clay, gravelly clay loam, gravelly clay	CL	A-7	0	0-15	75-100	60-100	60-100	50-80	40-50	15-25
	7-15	Clay loam, clay, cobbly clay loam	CL	A-7	0	0-15	85-100	70-100	70-100	50-80	40-50	15-25
	15-20	Indurated			---	---	---	---	---	---	---	---
	20-30	Unweathered bedrock			---	---	---	---	---	---	---	---
Robson----------	0-4	Very stony loam	GM, SM	A-2, A-4	20-35	15-30	55-85	45-75	40-65	30-50	30-35	5-10
	4-13	Very gravelly clay, very cobbly clay, extremely gravelly clay	GC, SC	A-2, A-7	0-5	10-40	45-70	30-55	25-50	20-50	45-55	20-30
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
4:												
Alvodest--------	0-6	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	6-42	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	20-35
	42-78	Silty clay, silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	35-55	10-30

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
5:												
Alvodest--------	0-6	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	6-42	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	20-35
	42-78	Silty clay, silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	35-55	10-30
Playas----------	0-60	Stratified silty clay loam to clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40
6:												
Alyan-----------	0-2	Gravelly sandy loam	GM, SM	A-4, A-2	0	5-15	65-80	60-75	50-65	30-40	25-30	NP-5
	2-10	Loam	ML	A-4	0	0-10	90-95	85-95	70-80	50-60	30-35	5-10
	10-17	Cobbly clay loam	CL, ML	A-6, A-7	0	15-30	80-95	70-90	65-90	50-70	35-45	10-20
	17-24	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	5-40	65-95	60-90	55-85	50-75	45-55	20-30
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
7:												
Anatone---------	0-5	Very stony loam	SC-SM, SM, GC-GM, GM	A-2, A-4	20-35	15-25	55-85	45-75	40-70	30-50	25-35	5-10
	5-16	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
8:												
Anatone, moist--	0-5	Very gravelly loam	GC-GM, GM	A-2, A-4	0-5	15-20	40-65	35-55	30-55	20-40	25-35	5-10
	5-16	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone---------	0-8	Stony loam	CL-ML, ML	A-4	15-20	5-15	80-95	75-90	70-85	50-60	25-35	5-10
	8-14	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
9:												
Anatone---------	0-5	Very gravelly loam	GC-GM, GM	A-2, A-4	0-5	15-20	40-65	35-55	30-55	20-40	25-35	5-10
	5-16	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Teguro----------	0-2	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-5	65-80	55-75	50-70	35-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Observation-----	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-15	15-20	60-70	35-60	35-55	25-45	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
10:												
Anatone, moist--	0-8	Extremely gravelly loam	GC-GM, GM	A-2	5-10	20-25	30-40	20-30	20-30	20-25	25-35	5-10
	8-14	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Egyptcreek------	0-8	Very gravelly loam	GC-GM, SC-SM	A-1, A-2, A-4	0	5-15	45-70	30-55	30-50	20-40	20-30	5-10
	8-18	Very gravelly loam	GC-GM, SC-SM	A-1, A-2, A-4	0	5-15	40-70	30-55	30-55	20-40	20-30	5-10
	18-24	Extremely cobbly loam, very gravelly loam	GC-GM, SC-SM	A-2, A-4	0-5	15-65	55-75	45-65	40-55	30-45	20-30	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
11:												
Anatone, moist--	0-5	Extremely gravelly loam	GC-GM, GM	A-2	5-10	20-25	30-40	20-30	20-30	20-25	25-35	5-10
	5-16	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Minam----------	0-3	Gravelly silt loam	CL-ML	A-4	0	0	85-95	65-75	60-70	55-65	20-30	5-10
	3-29	Silt loam, loam, gravelly silt loam	CL-ML, SC-SM	A-4	0	0	85-100	65-100	60-95	45-90	20-30	5-10
	29-39	Loam, silt loam	CL-ML	A-4	0	0	85-100	75-95	65-90	50-85	20-30	5-10
	39-52	Gravelly sandy clay loam	SC-SM, SM	A-2, A-4	0	0-5	70-85	55-75	45-65	30-40	25-35	5-10
	52-62	Gravelly sandy loam	SC-SM	A-2	0	0-10	70-85	55-75	35-50	20-30	20-25	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
12:												
Anatone---------	0-5	Very stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	20-35	15-25	55-85	45-75	40-70	30-50	25-35	5-10
	5-16	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Teguro----------	0-2	Very gravelly loam	GC-GM, GM	A-1, A-2	0-5	5-15	40-55	30-50	30-45	20-35	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
13:												
Anatone---------	0-5	Extremely gravelly loam	GC-GM, GM	A-2	5-10	20-25	30-40	20-30	20-30	20-25	25-35	5-10
	5-16	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
13:												
Westbutte-------	0-12	Very cobbly loam	CL-ML, GC-GM, GM, ML, SM	A-4	0-15	25-45	65-85	50-70	45-65	35-60	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
14:												
Anawalt---------	0-2	Gravelly clay loam	CL	A-6	0	0-5	85-95	65-75	60-70	50-55	30-35	10-15
	2-11	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	75-95	65-90	50-70	25-40	5-15
	11-16	Clay, cobbly clay	CH, CL	A-7	0	0-15	75-100	60-95	60-90	50-85	40-65	15-35
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
15:												
Anawalt---------	0-2	Gravelly clay loam	CL	A-6	0	0-5	85-95	65-75	60-70	50-55	30-35	10-15
	2-11	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	75-95	65-90	50-70	25-40	5-15
	11-16	Clay, cobbly clay	CH, CL	A-7	0	0-15	75-100	60-95	60-90	50-85	40-65	15-35
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Lonely----------	0-4	Cobbly clay loam	ML	A-6	0-5	10-35	75-90	65-85	60-80	50-65	35-40	10-15
	4-16	Clay loam, gravelly clay loam	ML	A-6	0	0-10	85-100	65-95	60-90	50-70	35-40	10-15
	16-24	Gravelly clay loam	GM, ML, SM	A-6	0	0-10	65-85	55-75	50-70	40-55	35-40	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
16:												
Anawalt---------	0-2	Gravelly clay loam	CL	A-6	0	0-5	85-95	65-75	60-70	50-55	30-35	10-15
	2-11	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	75-95	65-90	50-70	25-40	5-15
	11-16	Clay, cobbly clay	CH, CL	A-7	0	0-15	75-100	60-95	60-90	50-85	40-65	15-35
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Oreneva---------	0-2	Gravelly loam	SC-SM, SM	A-4	0	0-5	70-90	55-75	50-65	35-50	25-35	5-10
	2-10	Loam, clay loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	10-21	Very gravelly loam, very gravelly clay loam	GC-GM, GM	A-2, A-4	0	0-25	45-65	40-60	30-55	25-50	25-35	5-10
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
17:												
Anawalt---	0-2	Gravelly clay loam	CL	A-6	0	0-5	85-95	65-75	60-70	50-55	30-35	10-15
	2-11	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	75-95	65-90	50-70	25-40	5-15
	11-16	Clay, cobbly clay	CH, CL	A-7	0	0-15	75-100	60-95	60-90	50-85	40-65	15-35
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Raz---	0-2	Very cobbly loam	GM, ML, SM	A-4	0-5	25-55	65-95	60-90	50-80	40-65	30-35	5-10
	2-7	Gravelly clay loam, gravelly loam, cobbly clay loam	CL, GM, ML, SM	A-4, A-6	0	0-30	70-95	65-90	55-85	40-70	30-40	5-15
	7-12	Clay loam, loam	CL, ML	A-4, A-6	0	0	90-100	85-100	75-100	55-80	30-40	5-15
	12-23	Indurated			---	---	---	---	---	---	---	---
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
18:												
Ateron---	0-5	Gravelly loam	SC-SM, SM	A-4	0-5	5-15	70-85	60-75	50-65	35-50	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-45	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
19:												
Ateron---	0-5	Very stony loam	GM, SM	A-4	20-35	15-25	60-80	55-75	50-65	40-50	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-40	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land---	0-60	Fragmental material			---	---	---	---	---	---	---	---
20:												
Ateron---	0-5	Extremely stony silt loam	GM, ML, SM	A-4	35-65	20-30	60-80	45-70	40-70	35-60	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-40	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Observation---	0-4	Very stony loam	ML, SC-SM, SM	A-4	20-30	15-30	70-90	65-75	60-70	40-55	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
21:												
Atlow----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
22:												
Atlow----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
23:												
Atlow----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
24:												
Atlow----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
24:												
Skedaddle-------	0-3	Very stony clay loam	CL, SC	A-6	30-40	15-20	75-90	60-85	60-80	45-65	30-35	10-15
	3-8	Very cobbly clay loam, very stony clay loam, very cobbly loam	CL, GC, SC	A-6	0-40	15-40	65-90	55-85	50-80	35-65	25-35	10-15
	8-11	Very cobbly clay loam, very cobbly loam	GC, SC	A-6	0-15	20-40	65-75	55-65	50-60	35-45	25-35	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
25:												
Ausmus----------	0-2	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	2-9	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam, clay loam	ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-15
	16-29	Silt loam, loam	ML	A-4	0	0	100	100	85-95	65-80	30-35	5-10
	29-69	Loam	ML	A-4	0	0	100	100	85-95	60-75	30-35	5-10
26:												
Ausmus----------	0-2	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	2-9	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam, clay loam	ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-15
	16-29	Silt loam, loam	ML	A-4	0	0	100	100	85-95	65-80	30-35	5-10
	29-69	Loam	ML	A-4	0	0	100	100	85-95	60-75	30-35	5-10
27:												
Baconcamp-------	0-4	Stony clay loam	ML	A-4	15-20	5-15	75-95	70-90	70-90	50-70	30-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
28:												
Baconcamp-------	0-4	Very stony clay loam	ML	A-4	20-30	10-30	75-95	70-85	70-80	50-65	30-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	SM, GM, ML, SC-SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Clamp-----------	0-3	Very stony clay loam	GM, ML, SM	A-6	20-40	15-30	60-85	50-75	45-70	40-55	35-40	10-15
	3-12	Very cobbly clay loam	GM, ML, SM	A-6	0-10	20-45	60-85	50-75	45-70	40-55	35-40	10-15
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
29:												
Baconcamp-------	0-4	Very stony clay loam	ML	A-4	20-30	10-30	75-95	70-85	70-80	50-65	30-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Clamp-----------	0-3	Very stony clay loam	GM, ML, SM	A-6	20-40	15-30	60-85	50-75	45-70	40-55	35-40	10-15
	3-12	Very cobbly clay loam	GM, ML, SM	A-6	0-10	20-45	60-85	50-75	45-70	40-55	35-40	10-15
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
30:												
Baconcamp-------	0-4	Stony clay loam	ML	A-4	15-20	5-15	75-95	70-90	70-90	50-70	30-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Clamp-----------	0-3	Extremely stony clay loam	GM	A-2, A-6	30-55	15-30	45-65	35-55	30-50	25-40	35-40	10-15
	3-12	Very cobbly clay loam	GM, ML, SM	A-6	0-10	20-45	60-85	50-75	45-70	40-55	35-40	10-15
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
31:												
Baconcamp-------	0-4	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-15	15-30	75-95	70-90	60-85	40-70	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
32:												
Baconcamp-------	0-4	Very stony clay loam	ML	A-4	20-30	10-30	75-95	70-85	70-80	50-65	30-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
33:												
Baconcamp-------	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	20-30	10-30	75-95	70-85	65-75	40-60	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	SM, GM, ML, SC-SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Hackwood--------	0-11	Gravelly loam	SC-SM, SM	A-4	0	0-10	70-85	60-75	50-65	35-50	25-35	5-10
	11-23	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-100	60-95	60-85	35-70	25-35	5-10
	23-48	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	Gravelly loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10
34:												
Baconcamp-------	0-4	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	20-30	10-30	75-95	70-85	65-75	40-60	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
34:												
Hapgood---------	0-10	Gravelly sandy loam	SM	A-1	0-5	5-10	65-75	55-65	35-40	20-25	20-25	NP-5
	10-23	Very stony loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	23-43	Very stony loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
35:												
Baconcamp-------	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	15-20	5-15	75-95	70-90	60-85	40-70	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Krackle---------	0-4	Cobbly clay loam	ML	A-6	5-10	15-20	80-95	70-90	65-85	50-70	35-40	10-15
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
36:												
Berdugo---------	0-1	Silt loam	CL, CL-ML	A-4	0	0	100	80-100	70-100	60-90	25-30	5-10
	1-12	Silty clay loam, silty clay, clay	CL	A-7	0	0	100	100	90-100	75-95	40-50	15-25
	12-17	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	17-26	Loam, clay loam, very fine sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	75-100	65-95	50-75	20-35	NP-15
	26-65	Stratified loam to extremely gravelly sand	GM, ML, SM, SP-SM	A-1, A-2, A-4	0	0-15	40-100	20-85	15-75	5-60	10-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
37:												
Berdugo---------	0-1	Silt loam	CL, CL-ML	A-4	0	0	100	80-100	70-100	60-90	25-30	5-10
	1-12	Silty clay loam, silty clay, clay	CL	A-7	0	0	100	100	90-100	75-95	40-50	15-25
	12-17	Silt loam	CL-ML, CL	A-4, A-6	0	0	100	100	90-100	70-90	25-35	5-15
	17-26	Loam, clay loam, very fine sandy loam	CL, CL-ML, ML	A-4, A-6	0	0	90-100	75-100	65-95	50-75	20-35	NP-15
	26-65	Stratified loam to extremely gravelly sand	GM, ML, SM, SP-SM	A-1, A-2, A-4	0	0-15	40-100	20-85	15-75	5-60	10-20	NP-5
Catlow----------	0-3	Gravelly sandy loam	SC-SM	A-2	0	0	85-100	60-75	35-50	20-30	20-30	5-10
	3-22	Gravelly sandy loam, very gravelly sandy loam, very gravelly sandy clay loam	SC-SM	A-2	0	0	70-90	40-60	30-50	15-30	20-30	5-10
	22-31	Very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	50-80	20-40	15-30	5-15	10-20	NP-5
	31-60	Very gravelly sand, extremely gravelly sand	GP, GP-GM, SP, SP-SM	A-1	0	0-10	40-60	10-35	5-20	0-10	0-14	NP
38:												
Bigfrog---------	0-3	Very cobbly sandy clay loam	GC, GC-GM, SC, SC-SM	A-2	0-5	25-45	55-80	45-65	35-55	20-35	25-35	5-15
	3-18	Gravelly sandy clay loam, gravelly clay loam	GC, SC	A-6	0	0-10	65-85	55-75	45-70	35-55	30-40	10-20
	18-38	Indurated			---	---	---	---	---	---	---	---
	38-60	Stratified very gravelly loamy sand to very gravelly sandy clay loam	GC-GM, GM, SC-SM, SM	A-2, A-1	0	0-5	50-70	30-50	20-45	10-30	15-25	NP-10
Brock-----------	0-3	Very gravelly sandy loam	GC-GM, GM, SC-SM, SM	A-1, A-2	0-5	10-20	55-75	35-65	30-55	15-35	20-30	NP-10
	3-7	Very gravelly sandy clay loam, extremely gravelly sandy clay loam	GC, SC	A-2	0-5	10-25	50-75	25-65	20-55	15-35	30-40	10-15
	7-10	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0-5	10-20	50-75	35-65	30-55	15-35	25-30	5-10
	10-16	Indurated			---	---	---	---	---	---	---	---
	16-60	Stratified very gravelly loamy sand to very gravelly sandy loam	SC-SM, SM, GC-GM, GM	A-1, A-2	0-5	10-20	50-75	30-65	25-50	10-30	15-25	NP-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
39:												
Bocker----------	0-3	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	25-40	10-20	45-70	35-60	35-55	25-40	25-35	5-10
	3-7	Very stony loam, extremely stony loam	GC, GM, SM	A-2, A-4	20-40	5-20	45-80	30-75	30-70	25-45	25-35	5-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
40:												
Boravall--------	0-9	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	9-43	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	85-95	40-60	20-40
	43-60	Silty clay loam, silt loam	CL, CL-ML	A-4, A-6, A-7	0	0	100	100	90-100	70-95	25-45	5-20
Playas----------	0-60	Stratified silty clay loam to clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40
41:												
Borobey---------	0-3	Sandy loam	SM	A-2, A-4	0	0	90-100	85-95	65-75	30-45	0-14	NP
	3-11	Gravelly loam	SM	A-4	0	0-5	80-90	70-75	55-65	40-50	0-14	NP
	11-23	Sandy loam	SM	A-2, A-4	0	0-5	90-100	85-95	65-75	30-45	0-14	NP
	23-27	Gravelly loamy sand	SM	A-1	0	0-5	80-95	65-75	45-50	10-20	0-14	NP
	27-60	Gravelly loamy sand	SM	A-1	0	0-5	80-95	65-75	45-50	10-20	0-14	NP
42:												
Boulder Lake----	0-1	Clay	CH, CL	A-7	0	0	100	100	90-100	80-95	45-55	25-35
	1-42	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	80-95	45-55	25-35
	42-62	Silty clay loam, clay loam	CL	A-7	0	0	100	100	90-100	75-95	40-45	15-20
43:												
Boulder Lake----	0-1	Clay loam	CL, ML	A-6, A-7	0	0	100	100	90-100	75-95	35-45	10-20
	1-42	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	80-95	45-55	25-35
	42-62	Silty clay loam, clay loam	CL	A-7	0	0	100	100	90-100	75-95	40-45	15-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
43:												
Merlin----------	0-7	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-80	35-60	30-55	25-40	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
44:												
Boulder Lake----	0-1	Clay	CH, CL	A-7	0	0	100	100	90-100	80-95	45-55	25-35
	1-42	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	80-95	45-55	25-35
	42-62	Silty clay loam, clay loam	CL	A-7	0	0	100	100	90-100	75-95	40-45	15-20
Spangenburg-----	0-2	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	2-15	Silty clay, clay	CH	A-7	0	0	100	100	90-100	80-95	50-65	25-40
	15-34	Silty clay loam, silt loam	CL, ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-20
	34-60	Loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	65-80	25-35	5-10
45:												
Brabble---------	0-3	Gravelly sandy clay loam	SC	A-2, A-6	0	0-10	70-85	60-75	50-65	25-40	30-40	10-15
	3-9	Sandy clay loam	SC	A-6	0	0	80-95	75-90	65-80	40-50	30-40	10-15
	9-26	Clay loam, loam, gravelly clay loam	CL, SC	A-6	0	0	70-95	60-90	55-90	45-70	30-40	10-15
	26-33	Loam	CL	A-6	0	0	80-95	75-90	65-85	50-70	30-35	10-15
	33-38	Indurated			---	---	---	---	---	---	---	---
	38-48	Unweathered bedrock			---	---	---	---	---	---	---	---
Calderwood------	0-3	Very gravelly loam	GC-GM, GM	A-1, A-2	0-5	5-10	35-50	30-45	25-40	20-35	25-35	5-10
	3-12	Very cobbly loam, very cobbly clay loam	GC, GC-GM	A-2, A-4, A-6	0	15-30	55-70	50-65	40-65	30-50	25-40	5-15
	12-18	Very stony loam, very stony clay loam, very cobbly clay loam	CL, GC-GM, SC-SM	A-4, A-6	25-40	15-25	65-90	60-85	55-80	40-65	25-40	5-15
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
46:												
Brace-----------	0-6	Very stony loam	GC-GM, SC-SM	A-2, A-4	0-3	6-10	45-75	45-65	40-60	30-45	20-30	5-10
	6-13	Loam, sandy clay loam, clay loam	CL, CL-ML, SC-SM	A-4, A-6	0	0-10	85-100	80-90	75-90	40-70	25-40	5-15
	13-32	Sandy loam, loam	CL-ML, SC-SM	A-2, A-4	0	0-5	90-100	75-90	60-85	30-65	20-30	5-10
	32-36	Indurated			---	---	---	---	---	---	---	---
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
46:												
Coztur----------	0-9	Very stony loam	ML, SM	A-4	15-40	15-20	80-95	70-90	60-85	40-70	30-35	5-10
	9-18	Gravelly sandy clay loam, clay loam, loam	CL, SC	A-6	0-5	0-5	75-95	65-90	55-90	35-70	30-40	10-15
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
47:												
Brace-----------	0-6	Cobbly fine sandy loam	SC-SM	A-2, A-4	0-10	15-20	75-90	65-90	60-85	30-50	20-25	NP-10
	6-13	Loam, sandy clay loam, clay loam	CL, CL-ML, SC-SM	A-4, A-6	0	0-10	85-100	80-90	75-90	40-70	25-40	5-15
	13-32	Sandy loam, loam	CL-ML, SC-SM	A-2, A-4	0	0-5	90-100	75-90	60-85	30-65	20-30	5-10
	32-36	Indurated			---	---	---	---	---	---	---	---
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
Vergas----------	0-6	Fine sandy loam	SM	A-4	0	0	85-100	75-100	60-80	35-50	20-25	NP-5
	6-14	Gravelly sandy clay loam, clay loam, sandy clay loam	CL, SC	A-4, A-6	0	0	75-100	60-100	50-95	35-75	25-40	5-15
	14-20	Gravelly loamy sand, very gravelly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0	0	50-80	35-75	20-50	10-20	0-14	NP
	20-62	Very gravelly coarse sand, extremely gravelly coarse sand	GP, SP	A-1	0	0-5	40-70	20-50	15-30	0-5	0-14	NP
48:												
Bruncan, thick surface--------	0-5	Cobbly fine sandy loam	SM	A-2, A-4	0-10	15-20	75-90	65-90	60-85	30-50	20-25	NP-5
	5-15	Loam, clay loam, gravelly sandy clay loam	CL, CL-ML, SC, SC-SM	A-2, A-4, A-6	0-5	0-15	75-100	60-95	50-95	30-75	25-35	5-15
	15-17	Indurated			---	---	---	---	---	---	---	---
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---
Bruncan, thin surface--------	0-1	Cobbly fine sandy loam	SM	A-2, A-4	0-10	15-20	75-90	65-90	60-85	30-50	20-25	NP-5
	1-15	Loam, clay loam, gravelly sandy clay loam	CL-ML, SC, SC-SM, CL	A-2, A-4, A-6	0-5	0-15	75-100	60-95	50-95	30-75	25-35	5-15
	15-17	Indurated			---	---	---	---	---	---	---	---
	17-27	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
49:												
Brunzell--------	0-11	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0	65-85	55-75	50-65	40-50	25-35	5-10
	11-18	Gravelly sandy clay loam, very gravelly sandy clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0-15	60-85	45-75	35-65	20-40	25-35	5-10
	18-30	Very gravelly sandy clay loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-70	30-60	25-60	15-50	25-35	5-10
	30-62	Extremely gravelly loamy coarse sand, very gravelly sandy loam, very gravelly loamy coarse sand	GM, GP-GM, SM, SP-SM	A-1	5-20	20-35	30-70	15-55	10-35	5-20	15-25	NP-5
50:												
Bucklake--------	0-2	Very stony clay loam	GM, SM	A-4	20-25	5-15	70-80	50-70	50-65	35-50	30-35	5-10
	2-16	Clay, gravelly clay	CH, CL	A-7	0	0-10	70-95	60-90	55-90	50-80	45-55	20-30
	16-31	Gravelly clay loam	CL, GC, SC	A-7	0	5-10	70-85	60-80	55-80	40-65	40-45	15-20
	31-41	Unweathered bedrock			---	---	---	---	---	---	---	---
51:												
Bucklake--------	0-2	Very cobbly loam	SC-SM, SM	A-4	5-15	30-35	80-85	60-75	50-75	40-50	25-35	5-10
	2-16	Clay, gravelly clay	CH, CL	A-7	0	0-10	70-95	60-90	55-90	50-80	45-55	20-30
	16-31	Gravelly clay loam	CL, GC, SC	A-7	0	5-10	70-85	60-80	55-80	40-65	40-45	15-20
	31-41	Unweathered bedrock			---	---	---	---	---	---	---	---
Mahoon----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	30-50	60-90	40-70	35-65	30-50	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
52:												
Calderwood------	0-3	Very gravelly loam	GC-GM, GM	A-1, A-2	0-5	5-10	35-50	30-45	25-40	20-35	25-35	5-10
	3-12	Very cobbly loam, very cobbly clay loam	GC, GC-GM	A-2, A-4, A-6	0	15-30	55-70	50-65	40-65	30-50	25-40	5-15
	12-18	Very stony loam, very stony clay loam, very cobbly clay loam	CL, GC-GM, SC-SM	A-4, A-6	25-40	15-25	65-90	60-85	55-80	40-65	25-40	5-15
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
53:												
Calderwood------	0-3	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	15-25	75-95	70-90	60-80	45-65	25-35	5-10
	3-12	Very cobbly loam, very cobbly clay loam	GC, GC-GM	A-2, A-4, A-6	0	15-30	55-70	50-65	40-65	30-50	25-40	5-15
	12-18	Very stony loam, very stony clay loam, very cobbly clay loam	CL, GC-GM, SC-SM	A-4, A-6	25-40	15-25	65-90	60-85	55-80	40-65	25-40	5-15
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
McConnel--------	0-3	Very gravelly sandy loam	GM, SM	A-1, A-2	0	0-5	55-85	35-50	20-40	15-25	15-20	NP-5
	3-11	Gravelly sandy loam, gravelly loam	SM	A-1, A-2, A-4	0	0-5	70-85	50-75	30-60	20-50	15-20	NP-5
	11-62	Extremely gravelly loamy sand, very cobbly loamy sand, extremely cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-15	15-25	45-65	25-50	15-30	5-15	0-14	NP
54:												
Carryback-------	0-7	Silty clay loam	CL, ML	A-6	0	0-15	80-100	75-95	70-90	65-85	35-40	10-15
	7-24	Clay, silty clay	CH, CL	A-7	0	0-15	85-100	75-100	70-100	65-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
55:												
Carryback-------	0-7	Cobbly clay loam	ML	A-6	0	15-30	75-95	70-90	65-90	50-70	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
56:												
Carryback-------	0-7	Very stony clay loam	ML, SM	A-6	30-60	5-25	70-90	60-80	55-80	45-60	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
57:												
Carryback-------	0-7	Very gravelly loam	GM, SM	A-2, A-4	0	0-15	45-75	30-60	25-55	20-40	30-35	5-10
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
58:												
Carryback, thin surface--------	0-7	Silty clay loam	CL, ML	A-6	0	0-15	80-100	75-95	70-90	65-85	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Carryback, thick surface--------	0-10	Very gravelly loam	GM, SM	A-2, A-4	0	0-15	45-75	30-60	25-55	20-40	30-35	5-10
	10-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
59:												
Carryback, thin surface--------	0-7	Silty clay loam	CL, ML	A-6	0	0-15	80-100	75-95	70-90	65-85	35-40	10-15
	7-24	Clay, silty clay	CH, CL	A-7	0	0-15	85-100	75-100	70-100	65-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Carryback, south slopes---------	0-10	Gravelly clay loam	ML, SM	A-6	0	0-15	70-85	60-75	55-70	40-55	35-40	10-15
	10-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Carryback, north slopes---------	0-10	Gravelly clay loam	ML, SM	A-6	0	0-15	70-85	60-75	55-70	40-55	35-40	10-15
	10-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
60:												
Carryback, south slopes---	0-10	Very gravelly loam	GM, SM	A-2, A-4	0	0-15	45-75	30-60	25-55	20-40	30-35	5-10
	10-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Carryback, north slopes---	0-10	Very gravelly loam	GM, SM	A-2, A-4	0	0-15	45-75	30-60	25-55	20-40	30-35	5-10
	10-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
61:												
Carryback-------	0-7	Extremely cobbly clay loam	GM, ML, SM	A-6	5-25	55-75	60-80	50-70	45-70	35-55	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Pearlwise-------	0-6	Clay loam	CL, ML	A-6	0	0-10	95-100	85-100	80-100	60-80	35-40	10-15
	6-22	Loam, clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	70-100	65-100	50-80	25-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
62:												
Carryback-------	0-7	Extremely cobbly clay loam	GM, ML, SM	A-6	5-25	55-75	60-80	50-70	45-70	35-55	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Pearlwise-------	0-6	Clay loam	CL, ML	A-6	0	0-10	95-100	85-100	80-100	60-80	35-40	10-15
	6-22	Loam, clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	70-100	65-100	50-80	25-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
63:												
Carryback-------	0-7	Very stony clay loam	ML, SM	A-6	30-60	5-25	70-90	60-80	55-80	45-60	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
63:												
Dickle----------	0-3	Very cobbly clay loam	CL	A-6	0-15	25-40	70-90	65-80	60-80	50-65	30-40	10-15
	3-14	Clay loam, cobbly clay loam	CL	A-6	0	0-15	90-100	80-100	80-100	65-80	30-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
64:												
Carvix----------	0-6	Silt loam	CL-ML, ML	A-4	0	0	95-100	85-100	80-95	70-85	25-35	5-10
	6-19	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	75-95	60-85	25-35	5-10
	19-60	Loam, clay loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-95	60-85	25-35	5-10
65:												
Clamp-----------	0-3	Very stony clay loam	GM, ML, SM	A-6	20-40	15-30	60-85	50-75	45-70	40-55	35-40	10-15
	3-12	Very cobbly clay loam	GM, ML, SM	A-6	0-10	20-45	60-85	50-75	45-70	40-55	35-40	10-15
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Baconcamp-------	0-4	Very stony clay loam	ML	A-4	20-30	10-30	75-95	70-85	70-80	50-65	30-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Hackwood--------	0-11	Gravelly loam	SC-SM, SM	A-4	0	0-10	70-85	60-75	50-65	35-50	25-35	5-10
	11-23	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-100	60-95	60-85	35-70	25-35	5-10
	23-48	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	Gravelly loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10
66:												
Coztur----------	0-9	Sandy loam	SM	A-2, A-4	0	0-5	90-100	85-100	70-90	25-40	20-30	NP-5
	9-18	Gravelly sandy clay loam, clay loam, loam	CL, SC	A-6	0-5	0-5	75-95	65-90	55-90	35-70	30-40	10-15
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
67:												
Crowcamp--------	0-3	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	3-30	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	30-53	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0	80-100	70-100	60-90	45-65	25-35	5-10
	53-68	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0	50-80	35-70	30-60	25-45	25-35	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
68:												
Crowcamp--------	0-3	Silty clay loam	ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	3-30	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	30-53	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0	80-100	70-100	60-90	45-65	25-35	5-10
	53-68	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0	50-80	35-70	30-60	25-45	25-35	5-10
Ausmus----------	0-2	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	2-9	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam, clay loam	ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-15
	16-29	Silt loam, loam	ML	A-4	0	0	100	100	85-95	65-80	30-35	5-10
	29-69	Loam	ML	A-4	0	0	100	100	85-95	60-75	30-35	5-10
Poujade---------	0-4	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	50-65	20-30	5-10
	4-6	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	6-13	Silty clay loam, clay loam	CL, ML	A-6	0	0	100	80-100	80-95	60-90	35-40	10-15
	13-40	Loam, clay loam	CL	A-6	0	0	100	100	85-95	60-80	30-35	10-15
	40-65	Stratified very fine sandy loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	50-90	20-35	5-15
69:												
Davey-----------	0-3	Sandy loam	SM	A-2	0	0	100	75-100	50-70	25-35	15-25	NP-5
	3-18	Sandy loam	SM	A-2	0	0	90-100	85-100	55-70	30-35	15-25	NP-5
	18-60	Loamy sand, gravelly loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0	75-100	55-100	30-75	5-30	15-20	NP-5
70:												
Davey-----------	0-3	Gravelly sandy loam	SM	A-1	0	0	80-95	55-75	35-50	20-25	15-25	NP-5
	3-18	Sandy loam	SM	A-2	0	0	90-100	85-100	55-70	30-35	15-25	NP-5
	18-60	Loamy sand, gravelly loamy sand	SM, SP-SM	A-1, A-2, A-3	0	0	75-100	55-100	30-75	5-30	15-20	NP-5
Oreanna---------	0-7	Gravelly sandy clay loam	GC, GC-GM, SC, SC-SM	A-2, A-4, A-6	0	0	60-80	55-75	45-65	20-40	25-35	5-15
	7-21	Clay loam, sandy clay loam, gravelly sandy clay loam	CL, GC-GM, SC, SC-SM	A-2, A-4, A-6	0	0	60-95	55-90	45-90	20-70	25-35	5-15
	21-43	Very gravelly loamy coarse sand	GM, GP-GM	A-1	0	0	30-50	25-45	15-30	5-15	0-14	NP
	43-50	Very gravelly sandy loam	GM, GP-GM	A-1	0	0	30-50	25-45	15-30	10-20	0-14	NP-5
	50-60	Loamy sand	SM	A-1, A-2	0	0	80-100	75-100	40-75	15-30	0-14	NP
71:												
Defenbaugh------	0-5	Loam	CL-ML, ML	A-4	0	0	100	95-100	80-95	60-75	25-35	5-10
	5-29	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	60-80	25-40	5-15
	29-60	Very fine sandy loam, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	65-90	35-70	20-30	NP-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
72:												
Deppy	0-6	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-70	35-60	30-55	25-40	25-35	5-10
	6-15	Clay loam	CL, ML	A-6	0	0	90-100	85-100	75-100	60-80	35-40	10-15
	15-21	Cemented			---	---	---	---	---	---	---	---
	21-60	Gravelly sandy loam, very gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	40-65	30-60	15-40	10-25	0-14	NP
73:												
Deppy	0-6	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	40-60	65-85	45-75	40-65	30-50	25-35	5-10
	6-15	Clay loam	CL, ML	A-6	0	0	90-100	85-100	75-100	60-80	35-40	10-15
	15-21	Cemented			---	---	---	---	---	---	---	---
	21-60	Gravelly sandy loam, very gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	40-65	30-60	15-40	10-25	0-14	NP
Tumtum	0-2	Cobbly loam	ML, SM	A-4	0	15-40	75-95	70-90	60-85	45-65	25-35	5-10
	2-12	Clay loam	CL, ML	A-6	0	0	90-100	85-100	75-100	60-90	35-40	10-15
	12-25	Indurated			---	---	---	---	---	---	---	---
	25-60	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1	0	0-10	50-65	45-60	25-40	15-25	0-14	NP
74:												
Dickle	0-3	Very cobbly clay loam	CL	A-6	0-15	25-40	70-90	65-80	60-80	50-65	30-40	10-15
	3-14	Clay loam, cobbly clay loam	CL	A-6	0	0-15	90-100	80-100	80-100	65-80	30-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
75:												
Dixon	0-2	Gravelly fine sandy loam	SM	A-2	0	0	70-80	60-75	55-70	30-35	25-30	NP-5
	2-35	Clay loam, sandy clay loam, gravelly sandy clay loam	GM, ML, SM	A-2, A-4, A-6	0	0	65-95	60-90	50-90	25-70	30-40	5-15
	35-46	Very gravelly loamy sand, extremely gravelly loamy sand	GP-GM	A-1	0	0	25-50	20-45	10-30	5-10	0-14	NP
	46-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand	GM, GP-GM	A-1	0	0	25-55	20-50	10-35	5-20	15-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
76:												
Dixon----------	0-2	Gravelly fine sandy loam	SM	A-2	0	0	70-80	60-75	55-70	30-35	25-30	NP-5
	2-35	Clay loam, sandy clay loam, gravelly sandy clay loam	ML, SM, GM	A-2, A-4, A-6	0	0	65-95	60-90	50-90	25-70	30-40	5-15
	35-46	Very gravelly loamy sand, extremely gravelly loamy sand	GP-GM	A-1	0	0	25-50	20-45	10-30	5-10	0-14	NP
	46-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand	GM, GP-GM	A-1	0	0	25-55	20-50	10-35	5-20	15-20	NP-5
77:												
Dixon----------	0-2	Gravelly sandy clay loam	GM, SM	A-2	0	0	60-70	55-65	45-55	20-35	30-40	5-15
	2-35	Clay loam, sandy clay loam, gravelly sandy clay loam	GM, ML, SM	A-2, A-4, A-6	0	0	65-95	60-90	50-90	25-70	30-40	5-15
	35-46	Very gravelly loamy sand, extremely gravelly loamy sand	GP-GM	A-1	0	0	25-50	20-45	10-30	5-10	0-14	NP
	46-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand	GM, GP-GM	A-1	0	0	25-55	20-50	10-35	5-20	15-20	NP-5
78:												
Dixon----------	0-2	Gravelly sandy clay loam	GM, SM	A-2	0	0	60-70	55-65	45-55	20-35	30-40	5-15
	2-35	Clay loam, sandy clay loam, gravelly sandy clay loam	GM, ML, SM	A-4, A-6, A-2	0	0	65-95	60-90	50-90	25-70	30-40	5-15
	35-46	Very gravelly loamy sand, extremely gravelly loamy sand	GP-GM	A-1	0	0	25-50	20-45	10-30	5-10	0-14	NP
	46-60	Very gravelly sandy loam, very gravelly loamy sand, extremely gravelly loamy sand	GM, GP-GM	A-1	0	0	25-55	20-50	10-35	5-20	15-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
78:												
Droval----------	0-4	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	4-22	Silty clay	CH, CL	A-7	0	0	100	100	95-100	90-95	45-55	20-30
	22-32	Clay	CH	A-7	0	0	100	100	90-100	75-95	55-65	30-40
	32-61	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
79:												
Dogmountain-----	0-3	Gravelly loam	SM	A-4	0	0	75-85	60-75	55-75	40-50	20-25	NP-5
	3-9	Gravelly loam	SM	A-4	0	0	75-85	60-75	55-75	40-50	20-25	NP-5
	9-12	Very gravelly loam	SM	A-2	0	0-5	65-80	35-45	35-45	25-30	20-25	NP-5
	12-21	Extremely gravelly loam	SM	A-1	0	0-10	65-80	20-30	20-25	15-20	20-25	NP-5
	21-30	Indurated			---	---	---	---	---	---	---	---
	30-60	Cinders	GP	A-1	0	0-10	15-25	0-5	0-5	0	0-14	NP
80:												
Doyn----------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	15-35	15-30	70-95	60-90	50-80	40-65	25-35	5-10
	2-8	Sandy clay loam, cobbly loam, loam	ML, SM	A-4	0-5	0-20	75-95	70-95	60-85	40-70	30-35	5-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
81:												
Doyn----------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	15-35	15-30	70-95	60-90	50-80	40-65	25-35	5-10
	2-8	Sandy clay loam, cobbly loam, loam	ML, SM	A-4	0-5	0-20	75-95	70-95	60-85	40-70	30-35	5-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Very cobbly clay loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-75	40-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
82:												
Doyn----------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	15-35	15-30	70-95	60-90	50-80	40-65	25-35	5-10
	2-8	Sandy clay loam, cobbly loam, loam	ML, SM	A-4	0-5	0-20	75-95	70-95	60-85	40-70	30-35	5-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
Arcia----------	0-4	Extremely stony loam	SC-SM, SM	A-1, A-2	25-30	25-35	60-75	15-50	15-45	10-30	25-35	5-10
	4-13	Gravelly loam, very gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0-5	0-10	65-95	50-75	50-75	35-55	25-35	5-10
	13-23	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-10	75-95	60-90	60-90	50-75	40-55	15-30
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
83:												
Drewsey---	0-3	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	55-65	25-35	5-10
	3-32	Loam, fine sandy loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	90-100	70-90	40-65	25-35	5-10
	32-62	Fine sandy loam, loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	90-100	70-90	40-65	25-35	5-10
84:												
Drewsey---	0-3	Very fine sandy loam	CL-ML, ML	A-4	0	0	100	90-100	80-95	55-65	25-35	5-10
	3-32	Loam, fine sandy loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	90-100	70-90	40-65	25-35	5-10
	32-62	Fine sandy loam, loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	90-100	70-90	40-65	25-35	5-10
85:												
Drewsey---	0-3	Very cobbly sandy loam	SC-SM, SM	A-2	0	15-30	85-95	75-90	50-65	25-35	25-35	5-10
	3-32	Loam, fine sandy loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	90-100	70-90	40-65	25-35	5-10
	32-62	Fine sandy loam, loam, very fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	90-100	70-90	40-65	25-35	5-10
Torriorthents---	0-7	Variable			---	---	---	---	---	---	---	---
	7-17	Weathered bedrock			---	---	---	---	---	---	---	---
Gumble---	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	20-40	60-80	40-75	35-65	25-50	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
86:												
Droval---	0-4	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	4-22	Silty clay	CH, CL	A-7	0	0	100	100	95-100	90-95	45-55	20-30
	22-32	Clay	CH	A-7	0	0	100	100	90-100	75-95	55-65	30-40
	32-61	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
87:												
Duff---	0-8	Loam	CL-ML, ML	A-4	0	0-10	95-100	90-100	85-95	55-75	25-35	5-10
	8-24	Loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	24-43	Very gravelly loam, gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	10-20	55-85	45-75	40-70	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
88:												
Duff	0-8	Loam	CL-ML, ML	A-4	0	0-10	95-100	90-100	85-95	55-75	25-35	5-10
	8-24	Loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	24-43	Very gravelly loam, gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	10-20	55-85	45-75	40-70	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
Clamp	0-3	Cobbly clay loam	ML	A-6	0-5	15-40	80-95	75-90	70-85	50-70	35-40	10-15
	3-12	Very cobbly clay loam	GM, ML, SM	A-6	0-10	20-45	60-85	50-75	45-70	40-55	35-40	10-15
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
89:												
Duff	0-8	Loam	CL-ML, ML	A-4	0	0-10	95-100	90-100	85-95	55-75	25-35	5-10
	8-24	Loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	24-43	Very gravelly loam, gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	10-20	55-85	45-75	40-70	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
Clamp	0-3	Cobbly clay loam	ML	A-6	0-5	15-40	80-95	75-90	70-85	50-70	35-40	10-15
	3-12	Very cobbly clay loam	GM, ML, SM	A-6	0-10	20-45	60-85	50-75	45-70	40-55	35-40	10-15
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
90:												
Duff	0-8	Loam	CL-ML, ML	A-4	0	0-10	95-100	90-100	85-95	55-75	25-35	5-10
	8-24	Loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	24-43	Very gravelly loam, gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	10-20	55-85	45-75	40-70	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
Hackwood	0-11	Very gravelly loam	GC-GM, GM	A-2, A-4	0	0-10	55-65	40-50	35-50	25-40	25-35	5-10
	11-23	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-100	60-95	60-85	35-70	25-35	5-10
	23-48	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	Gravelly loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10
91:												
Edemaps	0-7	Loam	CL-ML, ML	A-4	0	0-5	80-95	75-90	65-85	50-70	25-35	5-10
	7-18	Clay, cobbly clay, cobbly clay loam	CL	A-7	0	0-25	80-95	70-90	70-90	55-80	40-50	15-25
	18-25	Cobbly clay loam, very cobbly clay loam	CL, GC, SC	A-7	0-5	25-30	60-85	45-80	40-75	35-60	40-45	15-20
	25-30	Indurated			---	---	---	---	---	---	---	---
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
92:												
Edemaps---	0-7	Cobbly clay loam	ML	A-6	0-10	15-30	80-95	70-90	70-85	50-70	35-40	10-15
	7-18	Clay, cobbly clay, cobbly clay loam	CL	A-7	0	0-25	80-95	70-90	70-90	55-80	40-50	15-25
	18-25	Cobbly clay loam, very cobbly clay loam	CL, GC, SC	A-7	0-5	25-30	60-85	45-80	40-75	35-60	40-45	15-20
	25-30	Indurated			---	---	---	---	---	---	---	---
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Carryback---	0-7	Cobbly clay loam	ML	A-6	0	15-30	75-95	70-90	65-90	50-70	35-40	10-15
	7-24	Clay, silty clay, gravelly silty clay	CH, CL	A-7	0	0-15	80-100	65-100	60-100	55-95	45-60	20-35
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
93:												
Enko---	0-8	Loamy sand	SM	A-2	0	0	90-100	85-95	65-80	25-30	15-20	NP-5
	8-29	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	29-45	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	45-62	Gravelly loamy sand, sandy loam, loamy sand	SM	A-2	0	0	75-100	65-95	50-75	20-30	15-20	NP-5
94:												
Enko---	0-8	Loamy sand	SM	A-2	0	0	90-100	85-95	65-80	25-30	15-20	NP-5
	8-29	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	29-45	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	45-62	Gravelly loamy sand, sandy loam, loamy sand	SM	A-2	0	0	75-100	65-95	50-75	20-30	15-20	NP-5
Catlow---	0-3	Gravelly loam	SC-SM	A-4	0	0	85-100	60-75	50-65	35-50	20-30	5-10
	3-22	Gravelly sandy loam, very gravelly sandy loam, very gravelly sandy clay loam	SC-SM	A-2	0	0	70-90	40-60	30-50	15-30	20-30	5-10
	22-31	Very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	50-80	20-40	15-30	5-15	10-20	NP-5
	31-60	Very gravelly sand, extremely gravelly sand	GP, GP-GM, SP, SP-SM	A-1	0	0-10	40-60	10-35	5-20	0-10	0-14	NP
95:												
Enko---	0-8	Loamy sand	SM	A-2	0	0	90-100	85-95	65-80	25-30	15-20	NP-5
	8-29	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	29-45	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	45-62	Gravelly loamy sand, sandy loam, loamy sand	SM	A-2	0	0	75-100	65-95	50-75	20-30	15-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
95:												
Catlow----------	0-3	Gravelly loam	SC-SM	A-4	0	0	85-100	60-75	50-65	35-50	20-30	5-10
	3-22	Gravelly sandy loam, very gravelly sandy loam, very gravelly sandy clay loam	SC-SM	A-2	0	0	70-90	40-60	30-50	15-30	20-30	5-10
	22-31	Very gravelly sandy loam, extremely gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	50-80	20-40	15-30	5-15	10-20	NP-5
	31-60	Very gravelly sand, extremely gravelly sand	GP, GP-GM, SP, SP-SM	A-1	0	0-10	40-60	10-35	5-20	0-10	0-14	NP
96:												
Enko----------	0-8	Loamy sand	SM	A-2	0	0	90-100	85-95	65-80	25-30	15-20	NP-5
	8-29	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	29-45	Sandy loam	SC-SM	A-2, A-4	0	0	95-100	90-100	65-80	30-50	20-25	5-10
	45-62	Gravelly loamy sand, sandy loam, loamy sand	SM	A-2	0	0	75-100	65-95	50-75	20-30	15-20	NP-5
Catlow----------	0-3	Very stony loam	GC-GM, SC-SM	A-4	20-30	0-10	60-80	50-70	45-65	35-50	20-30	5-10
	3-22	Very stony sandy clay loam, extremely stony sandy clay loam, very cobbly sandy loam	GC-GM, SC-SM	A-2, A-4	20-30	10-30	50-90	35-80	20-60	15-40	20-30	5-10
	22-31	Very cobbly loamy sand, very cobbly sandy loam, extremely cobbly loamy coarse sand	GM, GP-GM	A-1	0	30-50	25-55	15-45	10-30	5-15	10-20	NP-5
	31-60	Extremely cobbly loamy coarse sand, extremely cobbly coarse sand	GP, GP-GM	A-1	0	40-65	25-60	15-50	10-30	0-10	0-14	NP
97:												
Erakatak---------	0-7	Extremely stony silty clay loam	GM, SM	A-2, A-6	30-35	25-30	55-70	40-50	35-45	30-45	35-40	10-15
	7-16	Very cobbly clay loam, very cobbly silty clay loam	CL, GC, SC	A-2, A-7	0-10	15-30	55-85	35-75	35-70	25-55	40-45	15-20
	16-25	Very cobbly clay, very gravelly clay	CH, CL, GC, SC	A-2, A-7	0-10	15-30	45-85	30-75	30-70	25-55	45-60	20-35
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
98:												
Erakatak--------	0-7	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	20-25	60-80	45-60	45-55	30-45	25-35	5-10
	7-16	Very cobbly clay loam, very cobbly silty clay loam	CL, GC, SC	A-2, A-7	0-10	15-30	55-85	35-75	35-70	25-55	40-45	15-20
	16-25	Very cobbly clay, very gravelly clay	CH, CL, GC, SC	A-2, A-7	0-10	15-30	45-85	30-75	30-70	25-55	45-60	20-35
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Lambring--------	0-7	Very gravelly loam	SC-SM, SM, GC-GM, GM	A-1, A-2, A-4	0	0-15	50-80	30-60	25-55	20-40	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
99:												
Erakatak--------	0-7	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	20-25	60-80	45-60	45-55	30-45	25-35	5-10
	7-16	Very cobbly clay loam, very cobbly silty clay loam	CL, GC, SC	A-2, A-7	0-10	15-30	55-85	35-75	35-70	25-55	40-45	15-20
	16-25	Very cobbly clay, very gravelly clay	CH, CL, GC, SC	A-2, A-7	0-10	15-30	45-85	30-75	30-70	25-55	45-60	20-35
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	25-45	15-30	75-90	65-85	55-75	45-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
100:												
Erakatak--------	0-7	Very stony clay loam	ML, SM	A-6	20-30	15-25	75-90	50-75	50-70	35-55	35-40	10-15
	7-16	Very cobbly clay loam, very cobbly silty clay loam	CL, GC, SC	A-2, A-7	0-10	15-30	55-85	35-75	35-70	25-55	40-45	15-20
	16-25	Very cobbly clay, very gravelly clay	CH, CL, GC, SC	A-2, A-7	0-10	15-30	45-85	30-75	30-70	25-55	45-60	20-35
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
101:												
Erakatak--------	0-7	Very stony clay loam	ML, SM	A-6	20-30	15-25	75-90	50-75	50-70	35-55	35-40	10-15
	7-16	Very cobbly clay loam, very cobbly silty clay loam	CL, GC, SC	A-2, A-7	0-10	15-30	55-85	35-75	35-70	25-55	40-45	15-20
	16-25	Very cobbly clay, very gravelly clay	CH, CL, GC, SC	A-2, A-7	0-10	15-30	45-85	30-75	30-70	25-55	45-60	20-35
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Hapgood---------	0-10	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-4	5-10	20-45	60-80	50-70	40-65	35-50	25-35	5-10
	10-23	Very stony loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	23-43	Very stony loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
102:												
Felcher---------	0-10	Extremely stony clay loam	GC, GM, SC, SM	A-2, A-6	30-45	30-45	50-80	40-70	35-65	30-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GM, SC, SM, GC	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
103:												
Felcher---------	0-10	Very stony clay loam	GC, GM, SC, SM	A-6	15-40	15-40	60-85	50-75	45-70	35-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
104:												
Felcher---------	0-10	Extremely stony sandy clay loam	GC, GM, SC, SM	A-2, A-6	30-45	30-45	50-80	40-70	35-65	30-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Brezniak--------	0-3	Cobbly loam	CL-ML, ML	A-4	0-10	15-35	80-95	75-90	65-80	50-65	25-35	5-10
	3-7	Clay, clay loam	CH, CL	A-7	0-5	0-5	85-100	80-100	75-100	60-90	40-55	15-30
	7-10	Clay, clay loam	CH, CL	A-7	0-15	0-5	90-100	85-100	80-100	65-90	40-55	15-30
	10-20	Unweathered bedrock			---	---	---	---	---	---	---	---
105:												
Felcher---------	0-10	Very cobbly loam	GM, SM	A-2, A-4	5-25	15-45	55-85	45-75	40-65	30-50	30-35	5-10
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
106:												
Felcher	0-10	Very stony clay loam	GC, GM, SC, SM	A-6	15-40	15-40	60-85	50-75	45-70	35-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Sagehen	0-10	Stony clay loam	ML	A-6	15-20	5-15	80-90	70-90	70-90	50-70	35-40	10-15
	10-19	Very gravelly clay loam, very gravelly loam	GM, SM	A-2, A-6	0-10	0-15	55-70	35-60	30-60	25-50	35-40	10-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
107:												
Felcher	0-10	Very stony clay loam	GC, GM, SC, SM	A-6	15-40	15-40	60-85	50-75	45-70	35-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Sagehen	0-10	Very stony clay loam	ML	A-6	20-30	15-25	80-90	70-90	70-90	50-70	35-40	10-15
	10-19	Very gravelly clay loam, very gravelly loam	GM, SM	A-2, A-6	0-10	0-15	55-70	35-60	30-60	25-50	35-40	10-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
108:												
Felcher	0-10	Very cobbly loam	GM, SM	A-2, A-4	5-25	15-45	55-85	45-75	40-65	30-50	30-35	5-10
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
108:												
Fitzwater-------	0-9	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	25-55	60-80	50-70	45-65	30-45	25-35	5-10
	9-16	Very gravelly loam, extremely gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-15	25-35	35-70	20-55	15-50	10-40	25-35	5-10
	16-30	Extremely cobbly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	35-55	35-70	25-65	20-55	15-45	25-35	5-10
	30-58	Extremely stony sandy loam, extremely cobbly sandy loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	25-55	25-55	45-75	30-65	15-55	15-45	25-35	5-10
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
109:												
Felcher---------	0-10	Very stony clay loam	GC, GM, SC, SM	A-6	15-40	15-40	60-85	50-75	45-70	35-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
Pernty----------	0-3	Cobbly loam	CL, SC	A-6	0	15-30	80-95	65-90	55-80	45-65	25-30	10-15
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
110:												
Felcher---------	0-10	Very stony clay loam	GC, GM, SC, SM	A-6	15-40	15-40	60-85	50-75	45-70	35-50	35-40	10-15
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
110:												
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
111:												
Final-----------	0-3	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	3-12	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	12-24	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-55	20-30
	24-42	Clay loam, silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	30-45	10-20
	42-60	Clay loam, silty clay loam	CL	A-6, A-7	0	0	100	100	90-100	70-90	30-45	10-20
112:												
Fitzwater-------	0-9	Very stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	25-45	15-30	60-80	50-75	45-65	30-50	25-35	5-10
	9-16	Very gravelly loam, extremely gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-15	25-35	35-70	20-55	15-50	10-40	25-35	5-10
	16-30	Extremely cobbly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	35-55	35-70	25-65	20-55	15-45	25-35	5-10
	30-58	Extremely stony sandy loam, extremely cobbly sandy loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	25-55	25-55	45-75	30-65	15-55	15-45	25-35	5-10
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
Hapgood, thick surface--------	0-10	Gravelly sandy loam	SM	A-1	0-5	5-10	65-75	55-65	35-40	20-25	20-25	NP-5
	10-23	Very stony loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	23-43	Very stony loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
112:												
Hapgood, thin surface--------	0-5	Extremely gravelly sandy loam	GM, GP-GM	A-1	5-10	5-15	30-50	20-35	10-20	5-15	20-25	NP-5
	5-23	Very stony loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	23-43	Very stony loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
113:												
Fitzwater-------	0-9	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	25-55	60-80	50-70	45-65	30-45	25-35	5-10
	9-16	Very gravelly loam, extremely gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-15	25-35	35-70	20-55	15-50	10-40	25-35	5-10
	16-30	Extremely cobbly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-25	35-55	35-70	25-65	20-55	15-45	25-35	5-10
	30-58	Extremely stony sandy loam, extremely cobbly sandy loam, extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	25-55	25-55	45-75	30-65	15-55	15-45	25-35	5-10
	58-68	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
114:												
Flank----------	0-1	Extremely gravelly loamy sand	GP	A-1	0	0	25-40	15-25	10-15	0-5	0-14	NP
	1-9	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loam	GM, GP-GM	A-1, A-2	0	0-5	25-60	15-50	10-50	5-35	15-25	NP-5
	9-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Lava flows------	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
115:												
Fourwheel-------	0-7	Stony loam	CL-ML, ML	A-4	5-25	0-5	85-95	75-90	65-80	50-65	25-35	5-10
	7-22	Clay, silty clay	CH	A-7	0	0-5	85-100	75-95	70-90	65-85	50-65	25-40
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
116:												
Fourwheel-------	0-7	Extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-15	30-55	50-80	40-70	35-65	30-50	25-35	5-10
	7-22	Clay, silty clay	CH	A-7	0	0-5	85-100	75-95	70-90	65-85	50-65	25-40
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
117:												
Freznik---------	0-4	Very stony silt loam	GM, ML, SM	A-4	15-25	15-25	60-80	45-65	40-65	35-55	25-35	5-10
	4-12	Cobbly silty clay loam	CL	A-7	0	15-25	75-95	65-90	60-90	60-85	40-45	15-20
	12-20	Silty clay, clay	CH, CL	A-7	0	0	85-100	75-100	70-100	65-95	45-60	20-35
	20-35	Silty clay loam, silty clay	CL, ML	A-6, A-7	0	0	85-100	75-100	70-100	65-95	35-50	10-25
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
118:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
119:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
120:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
Degarmo---------	0-3	Silt loam	ML, CL-ML	A-4	0	0	100	95-100	90-95	80-85	25-35	5-10
	3-10	Silty clay loam	CL, ML	A-6	0	0	100	95-100	90-100	85-90	35-40	10-15
	10-21	Clay, clay loam	CL	A-7	0	0	100	90-100	80-90	70-85	40-50	20-25
	21-28	Clay loam, loam	CL	A-6	0	0	100	90-100	80-85	65-70	30-40	10-20
	28-34	Sandy clay loam	SM	A-4, A-6	0	0	100	90-100	65-75	40-50	30-40	5-15
	34-60	Very gravelly sandy loam	SM, SP-SM	A-1	0-5	0-5	75-85	30-50	25-40	10-25	20-30	NP-5
121:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
121:												
Housefield------	0-6	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	6-36	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	36-48	Mucky silty clay loam, mucky silt loam	OL	A-5	0	0	100	100	85-100	85-95	40-50	NP-5
	48-60	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	85-95	45-55	20-30
122:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
Housefield------	0-6	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	6-36	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	36-48	Mucky silty clay loam, mucky silt loam	OL	A-5	0	0	100	100	85-100	85-95	40-50	NP-5
	48-60	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	85-95	45-55	20-30
Skidoosprings---	0-11	Sandy loam	SM	A-4	0	0-5	90-100	85-100	50-70	35-50	20-25	NP-5
	11-23	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	23-30	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	30-41	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	41-49	Indurated			---	---	---	---	---	---	---	---
	49-60	Coarse sandy loam	SM	A-2	0	0	90-95	75-85	40-55	25-35	0-14	NP
123:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
Opie------------	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	7-10	Silty clay loam	ML	A-6	0	0	100	100	95-100	80-95	35-40	10-15
	10-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	16-26	Silty clay loam	ML	A-6	0	0	100	100	95-100	80-95	35-40	10-15
	26-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	44-64	Gravelly loam, gravelly sandy loam, gravelly loamy sand	GM, SM	A-2, A-4	0	0	60-85	55-75	30-65	15-45	15-20	NP-5
124:												
Fury------------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
124:												
Skidoosprings---	0-11	Sandy loam	SM	A-4	0	0-5	90-100	85-100	50-70	35-50	20-25	NP-5
	11-23	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	23-30	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	30-41	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	41-49	Indurated			---	---	---	---	---	---	---	---
	49-60	Coarse sandy loam	SM	A-2	0	0	90-95	75-85	40-55	25-35	0-14	NP
Opie----------	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	7-10	Silty clay loam	ML	A-6	0	0	100	100	95-100	80-95	35-40	10-15
	10-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	16-26	Silty clay loam	ML	A-6	0	0	100	100	95-100	80-95	35-40	10-15
	26-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	44-64	Gravelly loam, gravelly sandy loam, gravelly loamy sand	GM, SM	A-2, A-4	0	0	60-85	55-75	30-65	15-45	15-20	NP-5
125:												
Fury----------	0-14	Silt loam	ML	A-4	0	0	100	100	95-100	85-90	30-35	5-10
	14-21	Silty clay loam	ML	A-6	0	0	100	100	100	90-95	35-40	10-15
	21-27	Silty clay loam	ML	A-6	0	0	100	100	100	85-95	35-40	10-15
	27-34	Silt loam	CL-ML	A-4	0	0	100	100	100	85-95	25-30	5-10
	34-44	Silt loam	ML	A-4	0	0	100	100	85-95	75-85	20-25	NP-5
	44-60	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
Widowspring-----	0-22	Silt loam	CL	A-6	0	0	100	100	95-100	75-90	25-35	10-15
	22-43	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	25-40	10-20
	43-63	Loam, silt loam	CL	A-6	0	0	100	100	85-100	60-90	25-35	10-15
126:												
Gaib----------	0-7	Gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	75-85	60-80	60-75	40-60	25-35	5-10
	7-16	Very cobbly clay loam, extremely cobbly clay loam, very gravelly loam	GM, ML, SM	A-2, A-6	0-10	15-35	55-90	35-90	30-85	25-70	35-40	10-15
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
127:												
Gaib----------	0-7	Gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	75-85	60-80	60-75	40-60	25-35	5-10
	7-16	Very cobbly clay loam, extremely cobbly clay loam, very gravelly loam	GM, ML, SM	A-2, A-6	0-10	15-35	55-90	35-90	30-85	25-70	35-40	10-15
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
127:												
Ateron----------	0-5	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-70	35-60	30-50	25-45	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-45	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
128:												
Gaib----------	0-7	Gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	75-85	60-80	60-75	40-60	25-35	5-10
	7-16	Very cobbly clay loam, extremely cobbly clay loam, very gravelly loam	GM, ML, SM	A-2, A-6	0-10	15-35	55-90	35-90	30-85	25-70	35-40	10-15
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
129:												
Gilispie--------	0-5	Loam	CL-ML, ML	A-4	0-5	0-5	95-100	90-100	80-95	55-75	25-35	5-10
	5-14	Loam, clay loam, silty clay loam	CL, ML	A-6	0	0-5	95-100	85-100	80-95	55-85	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Noname----------	0-3	Very stony loam	CL-ML, GC-GM, SC-SM	A-4	20-30	5-15	65-80	55-70	50-65	40-55	25-30	5-10
	3-12	Clay loam, loam, cobbly clay loam	CL, CL-ML	A-4, A-6	0-5	5-10	80-95	70-95	65-90	55-70	25-40	5-20
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
130:												
Gochea----------	0-9	Sandy loam	SM	A-2, A-4	0	0	90-100	75-100	50-70	30-40	20-25	NP-5
	9-13	Sandy loam, loam, gravelly sandy loam	CL-ML, SC-SM	A-2, A-4	0	0	80-100	60-100	40-95	25-75	25-30	5-10
	13-27	Sandy loam, gravelly sandy loam	SC-SM	A-1, A-2	0	0	75-100	55-95	35-65	20-35	20-25	5-10
	27-62	Gravelly sandy loam, very gravelly sandy loam	SM, SP-SM	A-1	0	0	45-80	25-60	15-40	10-25	15-20	NP-5
131:												
Goldrun----------	0-24	Loamy sand	SM	A-2	0	0	100	100	50-75	15-30	0-14	NP
	24-56	Loamy sand, loamy fine sand, fine sand	SM	A-2	0	0	100	100	50-80	15-35	0-14	NP
	56-62	Sandy clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	80-90	35-55	25-35	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
131:												
Alvodest--------	0-6	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	6-42	Silty clay, clay, silty clay loam	CH, CL	A-7	0	0	100	100	90-100	75-95	40-60	20-35
	42-78	Silty clay, silty clay loam, loam	CH, CL	A-6, A-7	0	0	100	100	90-100	70-95	35-55	10-30
132:												
Gradon----------	0-3	Gravelly fine sandy loam	SM	A-2, A-4	0	0-5	75-95	60-75	45-60	30-40	15-25	NP-5
	3-10	Loam	CL-ML, ML	A-4	0	0-5	85-95	75-95	65-85	50-70	15-30	NP-10
	10-32	Clay loam, loam, gravelly sandy clay loam	CL	A-6	0	0-5	75-95	60-95	50-90	35-70	30-40	10-15
	32-48	Indurated			---	---	---	---	---	---	---	---
	48-52	Cemented			---	---	---	---	---	---	---	---
	52-62	Sandy loam, gravelly sandy loam	SM	A-2, A-4	0	0-5	70-100	55-100	35-70	20-40	10-20	NP-5
133:												
Guano----------	0-3	Gravelly sandy loam	SM	A-1, A-2	0	0-5	70-85	55-75	40-55	20-30	20-25	NP-5
	3-11	Gravelly clay loam, loam, sandy clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-5	80-100	65-100	65-90	40-60	25-40	5-15
	11-21	Weathered bedrock			---	---	---	---	---	---	---	---
134:												
Gumble----------	0-3	Very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-75	35-55	30-50	25-45	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
135:												
Gumble----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	15-25	60-85	45-75	45-70	35-50	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
136:												
Gumble	0-3	Very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-75	35-55	30-50	25-45	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
Mahoon	0-3	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	5-20	50-75	30-55	25-50	20-40	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
Cagle	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	10-20	55-70	35-60	30-55	25-45	25-35	5-10
	4-12	Clay, gravelly clay, gravelly clay loam	CH, CL, SC	A-7	0	0-10	75-95	60-90	55-85	40-75	40-55	15-30
	12-24	Clay, gravelly clay, gravelly clay loam	CH, CL, SC	A-7	0	0-10	75-95	60-90	55-85	40-75	40-55	15-30
	24-36	Clay loam, gravelly clay loam	CL, ML, SC	A-6, A-7	0	0-10	75-95	60-90	55-85	40-70	35-45	10-20
	36-46	Weathered bedrock			---	---	---	---	---	---	---	---
137:												
Hackwood	0-11	Gravelly loam	SC-SM, SM	A-4	0	0-10	70-85	60-75	50-65	35-50	25-35	5-10
	11-23	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-100	60-95	60-85	35-70	25-35	5-10
	23-48	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	Gravelly loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10
138:												
Hackwood	0-11	Gravelly loam	SC-SM, SM	A-4	0	0-10	70-85	60-75	50-65	35-50	25-35	5-10
	11-23	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-100	60-95	60-85	35-70	25-35	5-10
	23-48	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	Gravelly loam, very gravelly loam, very gravelly clay loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
138:												
Baconcamp-------	0-4	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-10	25-35	70-90	55-80	50-75	40-60	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
139:												
Hapgood---------	0-10	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-4	5-10	20-45	60-80	50-70	40-65	35-50	25-35	5-10
	10-23	Very stony loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	23-43	Very stony loam, very gravelly loam, very gravelly clay loam	SC-SM, SM, GC-GM, GM	A-2, A-4	5-45	15-30	60-80	45-70	40-65	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
140:												
Hart Camp-------	0-3	Cobbly loam	CL-ML, ML	A-4	0	15-30	80-95	70-90	60-85	50-70	25-35	5-10
	3-9	Cobbly loam, cobbly clay loam	CL, ML	A-4, A-6	0	25-45	80-95	75-90	65-90	50-70	30-40	5-15
	9-19	Cobbly loam, cobbly clay loam	CL, ML	A-4, A-6	0	25-45	80-95	75-90	65-90	50-70	30-40	5-15
	19-29	Weathered bedrock			---	---	---	---	---	---	---	---
141:												
Hart Camp-------	0-3	Cobbly loam	CL-ML, ML	A-4	0	15-30	80-95	70-90	60-85	50-70	25-35	5-10
	3-9	Cobbly loam, cobbly clay loam	CL, ML	A-4, A-6	0	25-45	80-95	75-90	65-90	50-70	30-40	5-15
	9-19	Cobbly loam, cobbly clay loam	CL, ML	A-4, A-6	0	25-45	80-95	75-90	65-90	50-70	30-40	5-15
	19-29	Weathered bedrock			---	---	---	---	---	---	---	---
142:												
Helphenstein----	0-3	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	3-9	Loam	ML	A-4	0	0	100	100	85-95	60-75	20-30	NP-5
	9-26	Loam, silt loam	ML	A-4	0	0	100	100	85-95	60-80	30-35	5-10
	26-62	Fine sandy loam, very fine sandy loam, loam	CL-ML, ML	A-4	0	0	100	100	75-95	50-75	25-35	5-10
Goldrun---------	0-24	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	24-56	Loamy sand, loamy fine sand, fine sand	SM	A-2	0	0	100	100	50-80	15-35	0-14	NP
	56-62	Sandy clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	80-90	35-55	25-35	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
143:												
Homefield-------	0-6	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	6-36	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	36-48	Mucky silty clay loam, mucky silt loam	OL	A-5	0	0	100	100	85-100	85-95	40-50	NP-5
	48-60	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	85-95	45-55	20-30
144:												
Housefield------	0-6	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	6-36	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	36-48	Mucky silty clay loam, mucky silt loam	OL	A-5	0	0	100	100	85-100	85-95	40-50	NP-5
	48-60	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	85-95	45-55	20-30
145:												
Housefield------	0-6	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	6-36	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	36-48	Mucky silty clay loam, mucky silt loam	OL	A-5	0	0	100	100	85-100	85-95	40-50	NP-5
	48-60	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	85-95	45-55	20-30
Doubleo---------	0-3	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	65-75	25-35	5-10
	3-10	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	90-95	40-55	15-30
	10-20	Clay, silty clay	MH, CH	A-7	0	0	100	100	95-100	80-90	50-65	20-35
	20-28	Clay loam, silty clay loam	CL	A-7	0	0	100	100	90-100	75-85	40-45	15-20
	28-45	Fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	75-95	40-75	15-25	NP-5
	45-60	Loam, silt loam	CL-ML	A-4	0	0	100	100	85-95	65-75	25-30	5-10
146:												
Icene-----------	0-6	Loam	ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	6-22	Clay loam, silty clay loam, loam	ML	A-4, A-6	0	0	100	100	85-100	65-95	30-40	5-15
	22-44	Silt loam, silty clay loam	ML	A-4, A-6	0	0	100	100	90-100	70-95	30-40	5-15
	44-62	Clay loam, loam	ML	A-4, A-6	0	0	100	100	85-100	60-80	30-40	5-15
Playas----------	0-60	Stratified silty clay loam to clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40
147:												
Icene-----------	0-6	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	6-22	Clay loam, silty clay loam, loam	ML	A-4, A-6	0	0	100	100	85-100	65-95	30-40	5-15
	22-44	Silt loam, silty clay loam	ML	A-4, A-6	0	0	100	100	90-100	70-95	30-40	5-15
	44-62	Clay loam, loam	ML	A-4, A-6	0	0	100	100	85-100	60-80	30-40	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
147:												
Playas----------	0-60	Stratified silty clay loam to clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40
148:												
Jesse Camp------	0-4	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	25-35	NP-10
	4-34	Silt loam	ML	A-4, A-6	0	0	100	100	90-100	75-90	30-40	5-15
	34-50	Silt loam	ML	A-4, A-6	0	0	100	85-100	80-100	75-90	30-40	5-15
	50-60	Very gravelly sandy loam, gravelly sandy loam, gravelly loam	SM	A-1, A-2, A-4	0	0	60-90	35-75	20-65	15-50	25-35	NP-10
149:												
Jimgreen--------	0-10	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	10-12	Mucky silt loam	OL	A-5	0	0	100	100	90-100	85-95	40-50	NP-5
	12-32	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	32-44	Muck, mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	44-60	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
150:												
Jimgreen--------	0-10	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	10-12	Mucky silt loam	OL	A-5	0	0	100	100	90-100	85-95	40-50	NP-5
	12-32	Muck	PT	A-8	0	0	100	100	85-100	80-100	---	---
	32-44	Muck, mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
	44-60	Mucky peat	PT	A-8	0	0	100	100	85-100	80-100	---	---
Housefield------	0-6	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	6-36	Mucky silt loam	OL	A-5	0	0	100	100	85-100	80-90	40-50	NP-5
	36-48	Mucky silty clay loam, mucky silt loam	OL	A-5	0	0	100	100	85-100	85-95	40-50	NP-5
	48-60	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	85-95	45-55	20-30
151:												
Kegler----------	0-10	Fine sandy loam	SM	A-4	0	0	100	100	70-80	40-50	25-35	NP-10
	10-32	Sandy clay loam, loam	ML, SM	A-4, A-6	0	0	100	100	70-90	45-70	30-40	5-15
	32-37	Silt loam	ML	A-4	0	0	100	100	85-95	70-85	25-35	5-10
	37-49	Indurated			---	---	---	---	---	---	---	---
	49-62	Silt loam	ML	A-4	0	0	100	100	95-100	80-90	25-35	NP-10
152:												
Kerrfield-------	0-3	Loam	ML	A-4	0	0	80-95	75-90	65-85	50-65	30-35	5-10
	3-12	Loam, sandy loam	ML, SM	A-2, A-4	0	0	90-100	85-100	55-95	30-75	25-35	5-10
	12-26	Sandy loam	SM	A-4	0	0	90-100	85-100	65-75	35-45	20-25	NP-5
	26-33	Very gravelly loamy coarse sand, gravelly loamy coarse sand	SP-SM, GM, GP-GM, SM	A-1	0	0	45-65	40-60	15-30	5-15	0-14	NP
	33-43	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
153:												
Klicker---------	0-3	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-10	15-20	50-80	30-60	30-55	25-45	25-35	5-10
	3-13	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-15	35-45	75-90	55-85	55-80	40-65	25-35	5-10
	13-24	Very cobbly clay loam, extremely cobbly clay loam	ML, SM	A-2, A-6	5-15	35-45	65-90	40-85	40-80	30-65	35-40	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
154:												
Klicker---------	0-3	Extremely cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	20-25	35-40	65-80	40-50	40-50	30-40	25-35	5-10
	3-13	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-15	35-45	75-90	55-85	55-80	40-65	25-35	5-10
	13-24	Very cobbly clay loam, extremely cobbly clay loam	ML, SM	A-2, A-6	5-15	35-45	65-90	40-85	40-80	30-65	35-40	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
155:												
Krackle, north slopes---------	0-4	Gravelly loam	CL-ML, SC-SM	A-4	0-5	0-10	70-85	60-80	50-70	35-60	25-30	5-10
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Krackle, south slopes---------	0-4	Gravelly loam	CL-ML, SC-SM	A-4	0-5	0-10	70-85	60-80	50-70	35-60	25-30	5-10
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
156:												
Krackle---------	0-4	Very gravelly loam	GC-GM, SC-SM	A-2, A-4	0-10	5-15	50-75	40-60	35-55	25-40	25-30	5-10
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
156:												
Baconcamp-------	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	5-15	60-70	45-55	40-50	30-40	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
157:												
Krackle---------	0-4	Very gravelly loam	GC-GM, SC-SM	A-2, A-4	0-10	5-15	50-75	40-60	35-55	25-40	25-30	5-10
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Baconcamp-------	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	5-15	60-70	45-55	40-50	30-40	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
158:												
Krackle---------	0-4	Cobbly clay loam	ML	A-6	5-10	15-20	80-95	70-90	65-85	50-70	35-40	10-15
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
159:												
Krackle---------	0-4	Cobbly clay loam	ML	A-6	5-10	15-20	80-95	70-90	65-85	50-70	35-40	10-15
	4-15	Very stony clay loam, very cobbly clay loam, very cobbly loam	CL	A-6	15-40	25-45	80-95	70-90	65-85	50-70	30-40	10-15
	15-30	Very stony clay loam, very cobbly loam	CL	A-6	25-45	15-30	80-95	70-90	65-85	50-70	30-40	10-15
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Baconcamp-------	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	15-20	5-15	75-95	70-90	60-85	40-70	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
Hackwood--------	0-11	Gravelly loam	SC-SM, SM	A-4	0	0-10	70-85	60-75	50-65	35-50	25-35	5-10
	11-23	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-100	60-95	60-85	35-70	25-35	5-10
	23-48	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	65-90	50-75	40-70	35-55	25-35	5-10
	48-60	Gravelly loam, very gravelly loam, very gravelly clay loam	SC-SM, SM, GC-GM, GM	A-2, A-4	0	0-5	55-85	40-70	35-65	25-50	25-35	5-10
160:												
Ladycomb--------	0-2	Cobbly clay loam	CL	A-6	0	15-25	85-95	80-90	75-90	55-70	35-40	10-15
	2-8	Clay loam, loam, sandy clay loam	CL, SC	A-6	0	0	80-95	75-90	65-90	40-70	35-40	10-15
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
161:												
Lambranch-------	0-3	Gravelly loam	SM	A-4	0	0-15	85-95	60-75	50-65	35-50	30-35	5-10
	3-7	Clay loam	ML	A-6	0	0-5	85-95	75-95	70-90	55-70	35-40	10-15
	7-14	Very gravelly clay	GC	A-2, A-7	0	5-25	50-70	35-55	30-50	30-50	45-50	20-25
	14-19	Very cobbly sandy clay loam, very gravelly clay loam	GC, GM, SC, SM	A-2, A-6, A-7	0	5-40	50-80	35-60	30-60	15-50	35-45	10-20
	19-27	Very gravelly clay	GC	A-2, A-7	0	5-25	50-70	35-55	30-50	30-50	45-50	20-25
	27-60	Very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0	5-30	50-80	35-60	30-60	25-50	30-40	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
162:												
Lambring--------	0-7	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Egyptcreek------	0-8	Very stony loam	SC-SM	A-4	15-35	15-25	75-90	65-75	60-65	35-50	20-30	5-10
	8-18	Very gravelly loam	GC-GM, SC-SM	A-1, A-2, A-4	0	5-15	40-70	30-55	30-55	20-40	20-30	5-10
	18-24	Extremely cobbly loam, very gravelly loam	GC-GM, SC-SM	A-2, A-4	0-5	15-65	55-75	45-65	40-55	30-45	20-30	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
163:												
Lambring, thick surface--------	0-10	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	0-15	50-80	30-60	25-55	20-40	25-35	5-10
	10-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Lambring, thin surface--------	0-7	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	0-15	50-80	30-60	25-55	20-40	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
164:												
Lambring--------	0-7	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
165:												
Langslet--------	0-14	Silty clay	CH, CL	A-7	0	0	100	90-100	85-95	80-90	45-55	25-30
	14-23	Sandy clay loam, clay loam	CL	A-7	0	0	100	90-100	75-95	50-80	40-45	20-25
	23-49	Clay loam, silty clay loam, silty clay	CH, CL	A-7	0	0	100	90-100	85-95	75-90	40-55	20-30
	49-62	Sandy clay loam, clay loam	CL, SC	A-7, A-6	0	0	100	90-100	75-95	40-80	35-45	15-25
166:												
Lava flows------	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
167:												
Lava flows------	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Flank-----------	0-1	Very gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	40-65	25-50	15-35	10-20	15-25	NP-5
	1-9	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loam	GM, GP-GM	A-1, A-2	0	0-5	25-60	15-50	10-50	5-35	15-25	NP-5
	9-19	Unweathered bedrock			---	---	---	---	---	---	---	---
168:												
Lawen-----------	0-10	Fine sandy loam	SM	A-4	0	0	100	100	75-85	40-50	0-14	NP
	10-15	Loam, fine sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	40-75	20-30	NP-10
	15-40	Fine sandy loam	SM	A-4	0	0	100	100	75-85	40-50	0-14	NP
	40-60	Fine sandy loam	SM	A-4	0	0	100	100	75-85	40-50	0-14	NP
169:												
Leathers--------	0-2	Silt loam	CL-ML	A-4	0	0	100	90-100	80-95	75-90	20-30	5-10
	2-9	Silt loam	CL-ML	A-4	0	0	100	90-100	80-95	75-90	20-30	5-10
	9-24	Loam, sandy loam	CL-ML, SC-SM	A-4	0	0	100	90-100	60-90	40-75	20-30	5-10
	24-28	Loam	CL-ML	A-4	0	0	100	85-100	75-90	60-75	20-30	5-10
	28-52	Loamy fine sand, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	85-100	65-90	35-75	15-30	NP-10
	52-61	Sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-70	5-15	0-0	NP
170:												
Leathers--------	0-2	Silt loam	CL-ML	A-4	0	0	100	90-100	80-95	75-90	20-30	5-10
	2-9	Silt loam	CL-ML	A-4	0	0	100	90-100	80-95	75-90	20-30	5-10
	9-24	Loam, sandy loam	CL-ML, SC-SM	A-4	0	0	100	90-100	60-90	40-75	20-30	5-10
	24-28	Loam	CL-ML	A-4	0	0	100	85-100	75-90	60-75	20-30	5-10
	28-52	Loamy fine sand, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	85-100	65-90	35-75	15-30	NP-10
	52-61	Sand	SM, SP-SM	A-2, A-3	0	0	100	90-100	60-70	5-15	0-0	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
171:												
Leemorris-------	0-5	Gravelly clay loam	GM, ML, SM	A-6	0	0-5	65-90	55-75	50-70	40-55	35-40	10-15
	5-26	Gravelly clay loam	CL, ML, SC, SM	A-6, A-7	0	0-15	65-90	55-75	50-70	40-55	35-45	10-20
	26-30	Gravelly clay	CH, CL	A-7	0	0-15	65-90	55-75	50-70	50-65	45-60	20-35
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Buckwilder------	0-8	Very cobbly clay loam	CL, SC, GC	A-6	0-5	15-30	60-90	40-80	35-80	35-65	30-40	10-20
	8-21	Clay	CH	A-7	0	0-5	80-95	75-95	70-90	65-85	60-70	45-55
	21-27	Clay, cobbly clay	CH	A-7	0	0-15	80-95	70-95	65-90	60-85	60-70	45-55
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
172:												
Leemorris-------	0-5	Gravelly clay loam	GM, ML, SM	A-6	0	0-5	65-90	55-75	50-70	40-55	35-40	10-15
	5-26	Gravelly clay loam	CL, ML, SC, SM	A-6, A-7	0	0-15	65-90	55-75	50-70	40-55	35-45	10-20
	26-30	Gravelly clay	CH, CL	A-7	0	0-15	65-90	55-75	50-70	50-65	45-60	20-35
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Buckwilder------	0-8	Very cobbly clay loam	CL, SC, GC	A-6	0-5	15-30	60-90	40-80	35-80	35-65	30-40	10-20
	8-21	Clay	CH	A-7	0	0-5	80-95	75-95	70-90	65-85	60-70	45-55
	21-27	Clay, cobbly clay	CH	A-7	0	0-15	80-95	70-95	65-90	60-85	60-70	45-55
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
173:												
Legler----------	0-4	Silty clay loam	CL	A-6	0	0	90-100	80-100	75-100	65-95	30-35	10-15
	4-45	Silty clay loam, loam	CL, ML	A-4, A-6	0	0	90-100	80-100	70-100	55-95	30-40	5-15
	45-62	Loam, gravelly loam, silty clay loam	CL, CL-ML, SC, SC-SM	A-4, A-6	0	0-10	75-100	65-100	55-100	40-85	25-35	5-15
174:												
Locane----------	0-7	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	20-35	60-80	40-70	40-65	30-50	25-35	5-10
	7-15	Very gravelly clay loam, very gravelly clay, very cobbly clay loam	CH, CL, GC, SC	A-2, A-7	0-10	15-30	55-80	35-70	35-65	25-55	40-55	15-30
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
175:												
Lolak-----------	0-3	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-90	20-30	NP-5
	3-10	Clay loam, silty clay loam	CL	A-7	0	0	100	100	95-100	70-90	40-45	15-20
	10-28	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	28-40	Clay, silty clay, silty clay loam	CH, CL, ML	A-7	0	0	100	100	90-100	75-95	40-55	15-25
	40-60	Loam, clay loam	CL, ML	A-6, A-7	0	0	100	100	85-95	65-80	35-45	10-20

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
176:												
Lolak----------	0-3	Very fine sandy loam	ML	A-4	0	0	100	100	85-100	50-90	20-30	NP-5
	3-10	Clay loam, silty clay loam	CL	A-7	0	0	100	100	95-100	70-90	40-45	15-20
	10-28	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	28-40	Clay, silty clay, silty clay loam	CH, CL, ML	A-7	0	0	100	100	90-100	75-95	40-55	15-25
	40-60	Loam, clay loam	CL, ML	A-6, A-7	0	0	100	100	85-95	65-80	35-45	10-20
Ausmus----------	0-2	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	2-9	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam, clay loam	ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-15
	16-29	Silt loam, loam	ML	A-4	0	0	100	100	85-95	65-80	30-35	5-10
	29-69	Loam	ML	A-4	0	0	100	100	85-95	60-75	30-35	5-10
177:												
Lonely----------	0-4	Sandy clay loam	SM	A-6	0	0-5	85-95	80-90	65-75	35-50	35-40	10-15
	4-16	Clay loam, gravelly clay loam	ML	A-6	0	0-10	85-100	65-95	60-90	50-70	35-40	10-15
	16-24	Gravelly clay loam	GM, ML, SM	A-6	0	0-10	65-85	55-75	50-70	40-55	35-40	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Doyn----------	0-2	Sandy clay loam	SM	A-4	0	0-10	90-95	85-90	75-85	40-50	30-35	5-10
	2-8	Sandy clay loam, cobbly loam, loam	ML, SM	A-4	0-5	0-20	75-95	70-95	60-85	40-70	30-35	5-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
178:												
Lonely----------	0-4	Cobbly clay loam	ML	A-6	0-5	10-35	75-90	65-85	60-80	50-65	35-40	10-15
	4-16	Clay loam, gravelly clay loam	ML	A-6	0	0-10	85-100	65-95	60-90	50-70	35-40	10-15
	16-24	Gravelly clay loam	GM, ML, SM	A-6	0	0-10	65-85	55-75	50-70	40-55	35-40	10-15
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Robson----------	0-4	Very cobbly clay loam	GM, ML, SM	A-2, A-6	0-5	20-40	55-85	40-70	35-70	30-55	35-40	10-15
	4-13	Very gravelly clay, very cobbly clay, extremely gravelly clay	GC, SC	A-2, A-7	0-5	10-40	45-70	30-55	25-50	20-50	45-55	20-30
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
179:												
Longcreek-------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	35-45	75-85	70-85	65-80	45-60	25-35	5-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very cobbly clay	CH, CL, GC, SC	A-2, A-7	0-5	5-50	50-90	35-85	35-85	25-75	40-55	15-30
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Cleavage--------	0-7	Extremely gravelly loam	GC-GM	A-2	0	0-10	25-35	15-25	10-25	10-20	25-30	5-10
	7-15	Very cobbly clay loam, extremely gravelly clay loam, very gravelly loam	GC	A-2	0-5	0-45	40-55	30-45	25-45	20-35	30-40	10-15
	15-25	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
180:												
Longcreek-------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	35-45	75-85	70-85	65-80	45-60	25-35	5-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very cobbly clay	CH, CL, GC, SC	A-2, A-7	0-5	5-50	50-90	35-85	35-85	25-75	40-55	15-30
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
181:												
Loupence--------	0-2	Silt loam	ML	A-4	0	0	100	100	90-100	85-95	25-35	5-10
	2-24	Silt loam	ML	A-4	0	0	100	100	90-100	85-95	25-35	5-10
	24-49	Silt loam	ML	A-4	0	0	100	100	90-100	85-95	25-35	5-10
	49-60	Sandy loam	SM	A-4	0	0	100	100	70-80	35-45	15-20	NP-5
182:												
Madeline--------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	20-40	10-25	85-95	65-90	50-80	40-55	25-35	5-10
	2-10	Clay loam	CL	A-7	0	0-10	85-100	75-95	70-90	55-70	40-45	15-20
	10-19	Cobbly clay loam, clay, clay loam	CH, CL	A-7	0	0-25	90-100	80-100	60-95	55-80	40-55	15-30
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
183:												
Madeline--------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	20-40	10-25	85-95	65-90	50-80	40-55	25-35	5-10
	2-10	Clay loam	CL	A-7	0	0-10	85-100	75-95	70-90	55-70	40-45	15-20
	10-19	Cobbly clay loam, clay, clay loam	CH, CL	A-7	0	0-25	90-100	80-100	60-95	55-80	40-55	15-30
	19-29	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
184:												
Madeline--------	0-2	Gravelly clay loam	ML, SM	A-6	0	0-10	75-90	60-75	55-70	40-55	35-40	10-15
	2-10	Clay loam	CL	A-7	0	0-10	85-100	75-95	70-90	55-70	40-45	15-20
	10-19	Cobbly clay loam, clay, clay loam	CH, CL	A-7	0	0-25	90-100	80-100	60-95	55-80	40-55	15-30
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
185:												
Madeline--------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	20-40	10-25	85-95	65-90	50-80	40-55	25-35	5-10
	2-10	Clay loam	CL	A-7	0	0-10	85-100	75-95	70-90	55-70	40-45	15-20
	10-19	Cobbly clay loam, clay, clay loam	CH, CL	A-7	0	0-25	90-100	80-100	60-95	55-80	40-55	15-30
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
186:												
Mahoon----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	30-50	60-90	40-70	35-65	30-50	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
187:												
Mahoon----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	30-50	60-90	40-70	35-65	30-50	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
Brezniak--------	0-3	Cobbly loam	CL-ML, ML	A-4	0-10	15-35	80-95	75-90	65-80	50-65	25-35	5-10
	3-7	Clay, clay loam	CH, CL	A-7	0-5	0-5	85-100	80-100	75-100	60-90	40-55	15-30
	7-10	Clay, clay loam	CH, CL	A-7	0-15	0-5	90-100	85-100	80-100	65-90	40-55	15-30
	10-20	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
187:												
Longcreek-------	0-7	Gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-85	60-80	55-80	40-55	25-35	5-10
	7-18	Very gravelly clay loam, very cobbly clay loam, very cobbly clay	CH, CL, GC, SC	A-2, A-7	0-5	5-50	50-90	35-85	35-85	25-75	40-55	15-30
	18-28	Unweathered bedrock	---	---	---	---	---	---	---	---	---	---
188:												
Mahoon----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	30-50	60-90	40-70	35-65	30-50	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Cagle----------	0-4	Very stony clay loam	GM, SM	A-2, A-4	15-25	15-25	60-75	40-65	40-60	30-50	30-35	5-10
	4-12	Clay, gravelly clay, gravelly clay loam	CH, CL, SC	A-7	0	0-10	75-95	60-90	55-85	40-75	40-55	15-30
	12-24	Clay, gravelly clay, gravelly clay loam	CH, CL, SC	A-7	0	0-10	75-95	60-90	55-85	40-75	40-55	15-30
	24-36	Clay loam, gravelly clay loam	CL, ML, SC	A-6, A-7	0	0-10	75-95	60-90	55-85	40-70	35-45	10-20
	36-46	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
189:												
Mahoon----------	0-3	Silt loam	CL-ML, ML	A-4	0	0	85-95	75-85	70-80	65-70	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock	---	---	---	---	---	---	---	---	---	---
Risley----------	0-3	Very gravelly loam	GC-GM, GM	A-2, A-4	0	0-10	45-65	35-50	30-45	25-40	25-35	5-10
	3-25	Clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-5	85-100	70-100	70-100	55-85	40-55	15-30
	25-37	Gravelly clay loam, clay loam	SC, CL, GC, GM, ML	A-6, A-7	0	0-5	65-95	50-85	45-80	35-65	35-45	10-20
	37-39	Very gravelly sandy clay loam, very gravelly clay loam	GC, GM, SC, SM	A-2	0	0-5	55-70	35-50	30-50	15-35	35-45	10-20
	39-49	Weathered bedrock	---	---	---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
190:												
Mahoon----------	0-3	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-1, A-2, A-4	0	5-20	50-75	30-55	25-50	20-40	25-35	5-10
	3-9	Gravelly clay, gravelly clay loam	CL, SC	A-7	0	0-15	80-95	60-75	55-70	45-65	40-50	15-25
	9-18	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	18-25	Gravelly clay, clay	CH, CL	A-7	0	0-15	75-100	60-95	55-90	50-85	45-65	20-40
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
Cotant----------	0-3	Stony loam	CL-ML, ML	A-4	10-15	10-15	85-95	75-90	75-85	50-65	25-35	5-10
	3-13	Clay	CH, CL	A-7	0-5	0-10	90-95	85-90	85-90	65-75	45-55	20-30
	13-23	Weathered bedrock			---	---	---	---	---	---	---	---
191:												
Mcbain----------	0-5	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	5-22	Loam	CL	A-6	0	0	100	100	85-95	60-75	25-30	10-15
	22-27	Clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-40	15-20
	27-37	Very fine sandy loam, sandy loam	CL-ML, SC-SM	A-4	0	0	100	100	60-90	40-60	20-25	5-10
	37-43	Clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-35	15-20
	43-60	Loam	CL	A-6	0	0	100	100	85-95	60-75	25-30	10-15
Ausmus----------	0-2	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	2-9	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam, clay loam	ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-15
	16-29	Silt loam, loam	ML	A-4	0	0	100	100	85-95	65-80	30-35	5-10
	29-69	Loam	ML	A-4	0	0	100	100	85-95	60-75	30-35	5-10
192:												
McConnel--------	0-3	Cobbly sandy loam	SM	A-2	0	10-25	75-95	65-85	40-55	25-30	15-20	NP-5
	3-11	Gravelly sandy loam, gravelly loam	SM	A-1, A-2, A-4	0	0-5	70-85	50-75	30-60	20-50	15-20	NP-5
	11-62	Extremely gravelly loamy sand, very cobbly loamy sand, extremely cobbly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0-15	15-25	45-65	25-50	15-30	5-15	0-14	NP
193:												
Merlin----------	0-7	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	25-45	15-30	75-90	65-85	55-75	45-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
194:												
Merlin, very stony----------	0-7	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	25-45	15-30	75-90	65-85	55-75	45-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin, very cobbly---------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-70	40-55	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
195:												
Merlin----------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-70	40-55	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Ateron----------	0-5	Gravelly loam	SC-SM, SM	A-4	0-5	5-15	70-85	60-75	50-65	35-50	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-45	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
196:												
Merlin----------	0-7	Very stony clay loam	CL-ML, ML	A-4	25-45	15-30	75-90	65-85	60-80	50-65	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Ateron----------	0-5	Very cobbly loam	GM, ML, SM	A-4	5-15	30-40	60-85	50-80	45-70	35-55	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-40	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
196:												
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
197:												
Merlin----------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-70	40-55	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Ateron----------	0-5	Very stony loam	GM, SM	A-4	20-35	15-25	60-80	55-75	50-65	40-50	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-40	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
Ticino----------	0-9	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	25-45	55-80	45-70	40-65	30-50	25-35	5-10
	9-26	Sandy clay loam, clay loam, gravelly sandy clay loam	ML, SM	A-2, A-6	0	0-5	70-95	55-90	45-85	30-70	35-40	10-15
	26-29	Weathered bedrock			---	---	---	---	---	---	---	---
	29-39	Unweathered bedrock			---	---	---	---	---	---	---	---
198:												
Merlin----------	0-7	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	25-45	15-30	75-90	65-85	55-75	45-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Erakatak--------	0-7	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	20-25	60-80	45-60	45-55	30-45	25-35	5-10
	7-16	Very cobbly clay loam, very cobbly silty clay loam	CL, GC, SC	A-2, A-7	0-10	15-30	55-85	35-75	35-70	25-55	40-45	15-20
	16-25	Very cobbly clay, very gravelly clay	CH, CL, GC, SC	A-2, A-7	0-10	15-30	45-85	30-75	30-70	25-55	45-60	20-35
	25-35	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
198:												
Teguro----------	0-2	Very gravelly loam	GC-GM, GM	A-1, A-2	0-5	5-15	40-55	30-50	30-45	20-35	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
199:												
Merlin----------	0-7	Very cobbly clay loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-75	40-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Observation-----	0-4	Very stony loam	ML, SC-SM, SM	A-4	20-30	15-30	70-90	65-75	60-70	40-55	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
200:												
Merlin----------	0-7	Very cobbly clay loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-75	40-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Observation-----	0-4	Very stony loam	ML, SC-SM, SM	A-4	20-30	15-30	70-90	65-75	60-70	40-55	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
201:												
Merlin----------	0-7	Very stony clay loam	CL-ML, ML	A-4	25-45	15-30	75-90	65-85	60-80	50-65	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
202:												
Merlin----------	0-7	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-80	35-60	30-55	25-40	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Teguro----------	0-2	Very gravelly loam	GC-GM, GM	A-1, A-2	0-5	5-15	40-55	30-50	30-45	20-35	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
203:												
Merlin----------	0-7	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	25-45	15-30	75-90	65-85	55-75	45-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Teguro----------	0-2	Very stony loam	GC-GM, GM	A-2, A-4	20-30	5-20	55-70	45-70	45-60	30-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
204:												
Mesman----------	0-4	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	15-20	NP-5
	4-26	Loam, clay loam, silty clay loam	CL	A-6	0	0	100	100	85-95	70-90	30-45	10-20
	26-62	Clay loam, loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-95	60-80	20-35	NP-15
205:												
Mesman----------	0-4	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	15-25	NP-5
	4-26	Loam, clay loam, silty clay loam	CL	A-6	0	0	100	100	85-95	70-90	30-45	10-20
	26-62	Clay loam, loam, silt loam	CL, CL-ML, ML	A-6, A-4	0	0	100	100	85-95	60-80	20-35	NP-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
206:												
Mesman----------	0-4	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	15-25	NP-5
	4-26	Loam, clay loam, silty clay loam	CL	A-6	0	0	100	100	85-95	70-90	30-45	10-20
	26-62	Clay loam, loam, silt loam	CL, CL-ML, ML	A-4, A-6	0	0	100	100	85-95	60-80	20-35	NP-15
Norad----------	0-3	Silt loam	ML	A-4	0	0	100	100	90-100	80-90	30-35	5-10
	3-23	Silty clay loam, silty clay	CL, MH, ML	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	23-34	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	34-61	Stratified loam to silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	90-100	75-90	30-45	5-20
207:												
Middlebox-------	0-4	Gravelly sandy loam	SC-SM	A-1, A-2	0	0-5	75-95	55-75	35-50	20-30	15-25	5-10
	4-10	Very gravelly sandy loam, very gravelly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2	0	5-20	60-80	40-60	30-55	15-35	15-35	5-15
	10-35	Very cobbly sandy loam, very cobbly sandy clay loam	SC, SC-SM	A-1, A-2	0	20-40	70-85	55-75	35-65	20-35	15-35	5-15
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---
208:												
Middlebox, north slopes---------	0-4	Gravelly sandy loam	SC-SM	A-1, A-2	0	0-5	75-95	55-75	35-50	20-30	15-25	5-10
	4-10	Very gravelly sandy loam, very gravelly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2	0	5-20	60-80	40-60	30-55	15-35	15-35	5-15
	10-35	Very cobbly sandy loam, very cobbly sandy clay loam	SC, SC-SM	A-1, A-2	0	20-40	70-85	55-75	35-65	20-35	15-35	5-15
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---
Middlebox, south slopes---------	0-4	Gravelly sandy loam	SC-SM	A-1, A-2	0	0-5	75-95	55-75	35-50	20-30	15-25	5-10
	4-10	Very gravelly sandy loam, very gravelly sandy clay loam	GC, GC-GM, SC, SC-SM	A-1, A-2	0	5-20	60-80	40-60	30-55	15-35	15-35	5-15
	10-35	Very cobbly sandy loam, very cobbly sandy clay loam	SC, SC-SM	A-1, A-2	0	20-40	70-85	55-75	35-65	20-35	15-35	5-15
	35-45	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
209:												
Minam----------	0-3	Silt loam	CL-ML	A-4	0	0	85-100	75-100	70-95	65-85	20-30	5-10
	3-29	Silt loam, loam, gravelly silt loam	CL-ML, SC-SM	A-4	0	0	85-100	65-100	60-95	45-90	20-30	5-10
	29-39	Loam, silt loam	CL-ML	A-4	0	0	85-100	75-95	65-90	50-85	20-30	5-10
	39-52	Gravelly sandy clay loam	SC-SM, SM	A-2, A-4	0	0-5	70-85	55-75	45-65	30-40	25-35	5-10
	52-62	Gravelly sandy loam	SC-SM	A-2	0	0-10	70-85	55-75	35-50	20-30	20-25	5-10
210:												
Minam----------	0-3	Silt loam	CL-ML	A-4	0	0	85-100	75-100	70-95	65-85	20-30	5-10
	3-29	Silt loam, loam, gravelly silt loam	CL-ML, SC-SM	A-4	0	0	85-100	65-100	60-95	45-90	20-30	5-10
	29-39	Loam, silt loam	CL-ML	A-4	0	0	85-100	75-95	65-90	50-85	20-30	5-10
	39-52	Gravelly sandy clay loam	SC-SM, SM	A-2, A-4	0	0-5	70-85	55-75	45-65	30-40	25-35	5-10
	52-62	Gravelly sandy loam	SC-SM	A-2	0	0-10	70-85	55-75	35-50	20-30	20-25	5-10
Welch----------	0-5	Silt loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
	5-60	Stratified sandy loam to silty clay loam	CL	A-6	0	0	80-100	75-100	65-90	50-70	30-40	10-20
211:												
Modoc----------	0-2	Gravelly sandy loam	SM	A-2	0	0	75-85	65-75	50-65	30-35	20-25	NP-5
	2-13	Loam	CL-ML	A-4	0	0	85-100	75-100	70-90	50-75	25-30	5-10
	13-22	Loam	CL	A-6	0	0	85-100	75-100	70-90	50-75	30-35	10-15
	22-25	Gravelly clay loam, clay loam	CL, GC, SC	A-6	0	0	65-95	55-90	50-85	40-70	35-40	15-20
	25-41	Indurated			---	---	---	---	---	---	---	---
	41-60	Extremely gravelly coarse sandy loam	GP-GM	A-1	0	0	30-40	15-25	10-15	5-10	10-15	NP-5
212:												
Morfitt---------	0-2	Loam	CL-ML, ML	A-4	0	0	100	90-100	85-95	65-75	25-35	5-10
	2-41	Clay loam, loam, silty clay loam	CL	A-6	0	0	100	90-100	85-95	65-95	30-40	10-20
	41-60	Loam, clay loam	CL-ML, ML	A-4	0	0	100	90-100	85-95	65-80	25-35	5-10
213:												
Morganhills-----	0-8	Sandy loam	SM	A-2	0	0	85-100	75-90	50-65	25-35	15-25	NP-5
	8-15	Gravelly sandy loam	SM	A-1, A-2	0	0-5	70-85	60-75	40-50	20-35	15-25	NP-5
	15-17	Very gravelly sandy loam, gravelly loamy sand	GM, GP-GM, SM, SP-SM	A-1, A-2	0	0-10	50-85	35-75	20-50	10-35	15-25	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
214:												
Morganhills, more than 12 percent slopes	0-8	Sandy loam	SM	A-2	0	0	85-100	75-90	50-65	25-35	15-25	NP-5
	8-15	Gravelly sandy loam	SM	A-1, A-2	0	0-5	70-85	60-75	40-50	20-35	15-25	NP-5
	15-17	Very gravelly sandy loam, gravelly loamy sand	GM, GP-GM, SM, SP-SM	A-1, A-2	0	0-10	50-85	35-75	20-50	10-35	15-25	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---
Morganhills, less than 12 percent slopes	0-8	Sandy loam	SM	A-2	0	0	85-100	75-90	50-65	25-35	15-25	NP-5
	8-15	Gravelly sandy loam	SM	A-1, A-2	0	0-5	70-85	60-75	40-50	20-35	15-25	NP-5
	15-17	Very gravelly sandy loam, gravelly loamy sand	GM, GP-GM, SM, SP-SM	A-1, A-2	0	0-10	50-85	35-75	20-50	10-35	15-25	NP-5
	17-27	Weathered bedrock			---	---	---	---	---	---	---	---
215:												
Mound----------	0-3	Stony loam	CL-ML, ML	A-4	15-30	5-15	85-95	75-90	65-80	50-65	25-35	5-10
	3-10	Very stony loam	CL-ML, ML	A-4	30-50	5-15	85-95	75-90	65-80	50-65	25-35	5-10
	10-20	Very stony clay, very stony clay loam, very cobbly clay	CH, CL, GC, SC	A-7	10-30	10-40	50-85	40-75	40-70	35-65	40-55	15-30
	20-53	Very stony clay	CH, CL, GC, SC	A-7	25-45	10-25	60-95	50-90	45-90	35-80	45-55	20-30
	53-63	Unweathered bedrock			---	---	---	---	---	---	---	---
216:												
Nevador---------	0-3	Very gravelly sandy loam	GM, SM, SP-SM	A-1	0	0-10	50-80	30-50	15-35	10-20	20-25	NP-5
	3-7	Loam	CL-ML, ML	A-4	0	0	85-100	75-100	65-95	50-75	25-35	5-10
	7-18	Clay loam	CL, ML	A-6	0	0	85-100	75-100	70-100	55-80	35-40	10-15
	18-32	Sandy loam	SM	A-2, A-4	0	0	85-100	75-100	50-70	30-40	15-20	NP-5
	32-62	Sandy loam, gravelly sandy loam	SM	A-1, A-2	0	0	65-90	50-85	30-55	15-30	15-20	NP-5
217:												
Ninemile--------	0-4	Gravelly loam	CL, SC, SC-SM	A-4	0-5	10-15	70-90	60-80	55-75	40-55	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
218:												
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
219:												
Ninemile--------	0-4	Very stony clay loam	SC	A-6	15-30	10-25	70-90	50-70	50-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
220:												
Ninemile--------	0-4	Gravelly loam	CL, SC, SC-SM	A-4	0-5	10-15	70-90	60-80	55-75	40-55	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Carvix----------	0-6	Silt loam	CL-ML, ML	A-4	0	0	95-100	85-100	80-95	70-85	25-35	5-10
	6-19	Silt loam, loam	CL-ML, ML	A-4	0	0	95-100	85-100	75-95	60-85	25-35	5-10
	19-60	Loam, clay loam	CL-ML, ML	A-4	0	0	90-100	85-100	75-95	60-85	25-35	5-10
221:												
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Doyn------------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	15-35	15-30	70-95	60-90	50-80	40-65	25-35	5-10
	2-8	Sandy clay loam, cobbly loam, loam	ML, SM	A-4	0-5	0-20	75-95	70-95	60-85	40-70	30-35	5-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---
222:												
Ninemile--------	0-4	Gravelly loam	CL, SC, SC-SM	A-4	0-5	10-15	70-90	60-80	55-75	40-55	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Edemaps---------	0-7	Cobbly clay loam	ML	A-6	0-10	15-30	80-95	70-90	70-85	50-70	35-40	10-15
	7-18	Clay, cobbly clay, cobbly clay loam	CL	A-7	0	0-25	80-95	70-90	70-90	55-80	40-50	15-25
	18-25	Cobbly clay loam, very cobbly clay loam	CL, GC, SC	A-7	0-5	25-30	60-85	45-80	40-75	35-60	40-45	15-20
	25-30	Indurated			---	---	---	---	---	---	---	---
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
223:												
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
223:												
Madeline--------	0-2	Gravelly clay loam	ML, SM	A-6	0	0-10	75-90	60-75	55-70	40-55	35-40	10-15
	2-10	Clay loam	CL	A-7	0	0-10	85-100	75-95	70-90	55-70	40-45	15-20
	10-19	Cobbly clay loam, clay, clay loam	CH, CL	A-7	0	0-25	90-100	80-100	60-95	55-80	40-55	15-30
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
224:												
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Pearlwise-------	0-6	Clay loam	CL, ML	A-6	0	0-10	95-100	85-100	80-100	60-80	35-40	10-15
	6-22	Loam, clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	70-100	65-100	50-80	25-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
225:												
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Reluctan--------	0-2	Cobbly loam	CL-ML	A-4	0-5	0-20	80-100	70-100	60-95	40-75	25-30	5-10
	2-9	Sandy loam, loam, cobbly loam	CL-ML, SC-SM	A-4	0-5	0-20	80-100	70-100	50-90	35-65	25-30	5-10
	9-26	Sandy clay loam, clay loam, cobbly sandy clay loam	CL, SC	A-6	0-5	0-20	80-100	70-95	55-90	40-70	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
226:												
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Reluctan--------	0-2	Loam	CL-ML	A-4	0-5	0-5	85-100	75-100	65-95	50-75	25-30	5-10
	2-9	Sandy loam, loam, cobbly loam	CL-ML, SC-SM	A-4	0-5	0-20	80-100	70-100	50-90	35-65	25-30	5-10
	9-26	Sandy clay loam, clay loam, cobbly sandy clay loam	CL, SC	A-6	0-5	0-20	80-100	70-95	55-90	40-70	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
226:												
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
227:												
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
228:												
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
229:												
Ninemile--------	0-4	Very cobbly loam	GC, SC, SC-SM	A-2, A-4	0-5	25-40	65-85	40-75	40-65	25-45	20-30	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
230:												
Ninemile, very cobbly---------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
230:												
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile, extremely stony	0-4	Extremely stony silt loam	GC-GM, GM	A-2, A-4	30-40	25-30	55-65	35-45	30-45	25-40	25-35	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
231:												
Ninemile, very cobbly---------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile, extremely stony	0-4	Extremely stony silt loam	GC-GM, GM	A-2, A-4	30-40	25-30	55-65	35-45	30-45	25-40	25-35	5-10
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
232:												
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
Felcher---------	0-10	Stony clay loam	ML, SM	A-4	15-30	5-20	75-95	70-90	65-80	45-65	30-35	5-10
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
233:												
Noname----------	0-3	Stony clay loam	CL	A-6	5-20	5-15	75-95	70-90	65-85	55-70	30-35	10-15
	3-12	Clay loam, loam, cobbly clay loam	CL, CL-ML	A-4, A-6	0-5	5-10	80-95	70-95	65-90	55-70	25-40	5-20
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Dickle----------	0-3	Very cobbly clay loam	CL	A-6	0-15	25-40	70-90	65-80	60-80	50-65	30-40	10-15
	3-14	Clay loam, cobbly clay loam	CL	A-6	0	0-15	90-100	80-100	80-100	65-80	30-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
234:												
Noname----------	0-3	Very stony loam	CL-ML, SC-SM, GC-GM	A-4	20-30	5-15	65-80	55-70	50-65	40-55	25-30	5-10
	3-12	Clay loam, loam, cobbly clay loam	CL, CL-ML	A-4, A-6	0-5	5-10	80-95	70-95	65-90	55-70	25-40	5-20
	12-22	Unweathered bedrock			---	---	---	---	---	---	---	---
Duff----------	0-8	Very stony loam	CL-ML, GC-GM, SC-SM, ML	A-4	20-30	10-15	75-90	70-75	65-70	45-55	25-35	5-10
	8-24	Loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	24-43	Very gravelly loam, gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	10-20	55-85	45-75	40-70	30-50	25-35	5-10
	43-53	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
235:												
Norad----------	0-3	Silt loam	ML	A-4	0	0	100	100	90-100	80-90	30-35	5-10
	3-23	Silty clay loam, silty clay	CL, MH, ML	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	23-34	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	34-61	Stratified loam to silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	90-100	75-90	30-45	5-20
236:												
Norad----------	0-3	Silt loam	ML	A-4	0	0	100	100	90-100	80-90	30-35	5-10
	3-23	Silty clay loam, silty clay	CL, MH, ML	A-7	0	0	100	100	95-100	85-95	40-55	15-25
	23-34	Silty clay loam	CL, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-20
	34-61	Stratified loam to silty clay loam	CL, ML	A-4, A-6, A-7	0	0	100	100	90-100	75-90	30-45	5-20
Spangenburg-----	0-2	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	2-15	Silty clay, clay	CH	A-7	0	0	100	100	90-100	80-95	50-65	25-40
	15-34	Silty clay loam, silt loam	CL, ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-20
	34-60	Loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	65-80	25-35	5-10

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
237:												
Nuss	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-30	5-15	75-95	70-90	60-80	45-65	25-35	5-10
	4-12	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-15	65-85	60-75	50-70	40-55	25-35	5-10
	12-15	Cobbly loam, cobbly clay loam	CL-ML, ML	A-4	0	15-40	80-95	75-90	65-85	50-70	25-35	5-10
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
238:												
Nuss	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-30	5-15	75-95	70-90	60-80	45-65	25-35	5-10
	4-12	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-15	65-85	60-75	50-70	40-55	25-35	5-10
	12-15	Cobbly loam, cobbly clay loam	CL-ML, ML	A-4	0	15-40	80-95	75-90	65-85	50-70	25-35	5-10
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin	0-7	Very cobbly clay loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-75	40-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
239:												
Nuss	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-30	5-15	75-95	70-90	60-80	45-65	25-35	5-10
	4-12	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-15	65-85	60-75	50-70	40-55	25-35	5-10
	12-15	Cobbly loam, cobbly clay loam	CL-ML, ML	A-4	0	15-40	80-95	75-90	65-85	50-70	25-35	5-10
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
240:												
Observation	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-15	5-15	80-90	70-90	65-85	45-65	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
241:												
Observation-----	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-15	5-15	80-90	70-90	65-85	45-65	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
242:												
Observation-----	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-15	5-15	80-90	70-90	65-85	45-65	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Royst-----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-4	5-20	25-45	65-85	55-75	50-65	40-50	25-35	5-10
	3-7	Cobbly loam	CL-ML, ML	A-4	0-5	15-30	80-95	75-90	65-80	50-65	25-35	5-10
	7-14	Very stony clay loam, very cobbly clay loam, very cobbly clay	CL	A-7	15-60	5-35	75-95	65-90	60-85	50-80	40-50	15-25
	14-22	Very stony clay loam, very cobbly clay loam, very cobbly clay	CL	A-7	15-60	5-35	75-95	65-90	60-85	50-80	40-50	15-25
	22-23	Weathered bedrock			---	---	---	---	---	---	---	---
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	25-45	15-30	75-90	65-85	55-75	45-60	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
243:												
Observation-----	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-15	15-20	60-70	35-60	35-55	25-45	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
243:												
Teguro----------	0-2	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-15	30-45	60-80	50-75	45-70	30-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
244:												
Observation-----	0-4	Very stony loam	ML, SC-SM, SM	A-4	20-30	15-30	70-90	65-75	60-70	40-55	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Lambring--------	0-7	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
245:												
Olac------------	0-4	Very cobbly fine sandy loam	SM	A-1, A-2	0-5	20-40	60-90	40-75	30-55	15-35	20-30	NP-5
	4-13	Very cobbly clay loam, extremely cobbly clay loam, extremely gravelly loam	GM, SM	A-1, A-2, A-4	0	30-70	50-80	30-70	30-70	20-50	30-35	5-10
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Atlow-----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
246:												
Opie----------	0-7	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	7-10	Silty clay loam	ML	A-6	0	0	100	100	95-100	80-95	35-40	10-15
	10-16	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	16-26	Silty clay loam	ML	A-6	0	0	100	100	95-100	80-95	35-40	10-15
	26-44	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	85-90	25-35	5-10
	44-64	Gravelly loam, gravelly sandy loam, gravelly loamy sand	GM, SM	A-2, A-4	0	0	60-85	55-75	30-65	15-45	15-20	NP-5
247:												
Oreneva---------	0-2	Gravelly loam	SC-SM, SM	A-4	0	0-5	70-90	55-75	50-65	35-50	25-35	5-10
	2-10	Loam, clay loam	CL-ML, ML	A-4	0	0-5	85-100	75-100	65-95	50-75	25-35	5-10
	10-21	Very gravelly loam, very gravelly clay loam	GC-GM, GM	A-2, A-4	0	0-25	45-65	40-60	30-55	25-50	25-35	5-10
	21-31	Unweathered bedrock			---	---	---	---	---	---	---	---
248:												
Outerkirk-------	0-6	Sandy loam	SM	A-2, A-4	0	0	85-100	80-100	50-70	25-40	15-25	NP-5
	6-29	Sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	75-100	70-100	45-70	20-40	15-25	NP-5
	29-51	Loamy sand, sandy loam	SM	A-1, A-2, A-4	0	0	80-100	75-100	45-75	15-40	0-14	NP
	51-60	Loamy sand, sandy loam	SM	A-1, A-2	0	0	80-95	75-90	45-65	15-35	0-14	NP
249:												
Outerkirk-------	0-4	Sandy loam	SM	A-2, A-4	0	0	85-100	80-100	50-70	25-40	15-25	NP-5
	4-27	Sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	75-100	70-100	45-70	20-40	15-25	NP-5
	27-42	Sandy loam, loamy sand	SM	A-1, A-2, A-4	0	0	80-100	75-100	45-75	15-40	0-14	NP
	42-60	Silty clay loam	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-15
250:												
Outerkirk-------	0-6	Sandy loam	SM	A-2, A-4	0	0	85-100	80-100	50-70	25-40	15-25	NP-5
	6-29	Sandy loam, gravelly sandy loam	SM	A-1, A-2, A-4	0	0	75-100	70-100	45-70	20-40	15-25	NP-5
	29-51	Loamy sand, sandy loam	SM	A-1, A-2, A-4	0	0	80-100	75-100	45-75	15-40	0-14	NP
	51-60	Loamy sand, sandy loam	SM	A-1, A-2	0	0	80-95	75-90	45-65	15-35	0-14	NP
Defenbaugh------	0-5	Loam	CL-ML, ML	A-4	0	0	100	95-100	80-95	60-75	25-35	5-10
	5-29	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0	100	95-100	80-100	60-80	25-40	5-15
	29-60	Very fine sandy loam, sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	95-100	65-90	35-70	20-30	NP-10
251:												
Ozamis----------	0-11	Silt loam	ML	A-4	0	0	100	95-100	90-100	85-95	25-35	5-10
	11-50	Loam, silty clay loam, clay loam	CL	A-6, A-7	0	0	100	85-100	80-100	70-95	30-45	10-20
	50-60	Stratified sandy loam to silty clay loam	CL, ML, SC, SM	A-4, A-6	0	0	100	100	70-95	40-85	20-35	NP-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
252:												
Pearlwise-------	0-6	Stony loam	CL-ML, ML, SC-SM, SM	A-4	5-20	5-15	75-95	70-90	60-80	40-65	25-35	5-10
	6-22	Loam, clay loam, gravelly clay loam	CL, CL-ML	A-4, A-6	0	0-10	80-100	70-100	65-100	50-80	25-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
253:												
Pernty----------	0-3	Gravelly silt loam	CL, SC	A-6	0	0-5	70-90	50-75	50-75	45-65	25-30	10-15
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
254:												
Pernty----------	0-3	Gravelly silt loam	CL, SC	A-6	0	0-5	70-90	50-75	50-75	45-65	25-30	10-15
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
255:												
Pernty----------	0-3	Cobbly loam	CL, SC	A-6	0	15-30	80-95	65-90	55-80	45-65	25-30	10-15
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
256:												
Pernty----------	0-3	Gravelly silt loam	CL, SC	A-6	0	0-5	70-90	50-75	50-75	45-65	25-30	10-15
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
257:												
Pernty----------	0-3	Gravelly silt loam	CL, SC	A-6	0	0-5	70-90	50-75	50-75	45-65	25-30	10-15
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Ninemile--------	0-4	Very cobbly clay loam	GC, SC	A-6	0-5	25-40	65-85	40-75	40-65	35-50	30-35	10-15
	4-16	Clay, gravelly clay, cobbly clay	CH, CL	A-7	0	0-30	80-100	60-100	60-100	55-85	45-60	25-40
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
258:												
Pits------------	---	---	---	---	---	---	---	---	---	---	---	---
259:												
Playas----------	0-60	Stratified silty clay loam to clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40
260:												
Playas----------	0-60	Stratified silty clay loam to clay	CH, CL, MH	A-7	0	0	100	100	100	90-100	45-75	20-40
Thenarrows------	0-3	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	3-14	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	14-22	Loamy sand, sandy loam	SM	A-2, A-4	0	0	100	100	65-75	25-45	15-25	NP-5
	22-31	Sandy loam	SM	A-4	0	0	100	100	65-75	40-50	20-25	NP-5
	31-54	Sandy loam, loamy sand	SM	A-2, A-4	0	0	100	100	65-75	25-50	15-25	NP-5
	54-60	Loamy sand	SM	A-2	0	0	100	100	65-75	25-35	0-14	NP
261:												
Poall-----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	90-100	80-100	75-95	60-90	25-35	5-10
	8-17	Clay	CL, CH	A-7	0	0	90-100	80-100	75-100	65-95	45-55	20-30
	17-33	Clay loam, gravelly clay loam, gravelly silty clay loam	ML	A-7	0	0	80-100	70-100	65-100	50-80	40-45	10-15
	33-65	Clay loam, gravelly clay loam, silty clay loam	GM, ML, SM	A-6, A-7	0	0	70-100	55-100	50-95	40-75	35-45	10-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
262:												
Poall----------	0-8	Silt loam	CL-ML, ML	A-4	0	0	90-100	80-100	75-95	60-90	25-35	5-10
	8-17	Clay	CL, CH	A-7	0	0	90-100	80-100	75-100	65-95	45-55	20-30
	17-33	Clay loam, gravelly clay loam, gravelly silty clay loam	ML	A-7	0	0	80-100	70-100	65-100	50-80	40-45	10-15
	33-65	Clay loam, gravelly clay loam, silty clay loam	GM, ML, SM	A-6, A-7	0	0	70-100	55-100	50-95	40-75	35-45	10-15
Gumble----------	0-3	Very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-75	35-55	30-50	25-45	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
263:												
Pomerening------	0-4	Very gravelly loamy sand	GM, GP-GM	A-1	0	0	40-65	25-50	15-30	5-15	0-14	NP
	4-9	Very gravelly loamy coarse sand	GM, GP-GM	A-1	0	0-10	40-65	25-55	15-30	5-15	0-14	NP
	9-62	Gravelly loamy coarse sand, gravelly loamy sand, very gravelly loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	55-90	40-80	20-55	5-15	0-14	NP
264:												
Pomerening------	0-4	Very gravelly sandy loam	GM, GP-GM	A-1	0	0	40-65	25-50	15-35	10-20	0-14	NP
	4-9	Very gravelly loamy coarse sand	GM, GP-GM	A-1	0	0-10	40-65	25-55	15-30	5-15	0-14	NP
	9-62	Gravelly loamy coarse sand, gravelly loamy sand, very gravelly loamy coarse sand	SM, SP-SM	A-1, A-2, A-3	0	0-10	55-90	40-80	20-55	5-15	0-14	NP
Flank----------	0-1	Very gravelly sandy loam	GM, GP-GM, SM, SP-SM	A-1	0	0	40-65	25-50	15-35	10-20	15-25	NP-5
	1-9	Very gravelly sandy loam, extremely gravelly sandy loam, very gravelly loam	GM, GP-GM	A-1, A-2	0	0-5	25-60	15-50	10-50	5-35	15-25	NP-5
	9-19	Unweathered bedrock			---	---	---	---	---	---	---	---
Lava flows------	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
265:												
Porterfield-----	0-6	Loam	CL-ML, SC-SM	A-4	0	0-5	90-95	80-90	75-85	45-65	25-30	5-10
	6-14	Loam, gravelly silty clay loam	CL-ML, SC-SM	A-4	0	0-10	70-95	60-90	50-90	40-80	25-30	5-10
	14-24	Weathered bedrock			---	---	---	---	---	---	---	---
266:												
Porterfield-----	0-6	Very stony loam	SC-SM	A-2, A-4	20-25	1-25	70-90	50-75	40-70	25-50	25-30	5-10
	6-14	Loam, gravelly silty clay loam	CL-ML, SC-SM	A-4	0	0-10	70-95	60-90	50-90	40-80	25-30	5-10
	14-24	Weathered bedrock			---	---	---	---	---	---	---	---
267:												
Porterfield-----	0-6	Very stony loam	SC-SM	A-2, A-4	20-25	1-25	70-90	50-75	40-70	25-50	25-30	5-10
	6-14	Loam, gravelly silty clay loam	CL-ML, SC-SM	A-4	0	0-10	70-95	60-90	50-90	40-80	25-30	5-10
	14-24	Weathered bedrock			---	---	---	---	---	---	---	---
Tincan----------	0-10	Gravelly silt loam	CL-ML, ML, SC-SM, SM	A-4	0	0-10	70-90	50-75	45-70	40-65	25-35	5-10
	10-16	Gravelly silt loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-10	70-90	50-75	40-70	35-65	25-35	5-10
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
268:												
Poujade---------	0-4	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	50-65	20-30	5-10
	4-6	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	6-13	Silty clay loam, clay loam	CL, ML	A-6	0	0	100	80-100	80-95	60-90	35-40	10-15
	13-40	Loam, clay loam	CL	A-6	0	0	100	100	85-95	60-80	30-35	10-15
	40-65	Stratified very fine sandy loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	50-90	20-35	5-15
269:												
Poujade---------	0-4	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	50-65	20-30	5-10
	4-6	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	6-13	Silty clay loam, clay loam	CL, ML	A-6	0	0	100	80-100	80-95	60-90	35-40	10-15
	13-40	Loam, clay loam	CL	A-6	0	0	100	100	85-95	60-80	30-35	10-15
	40-65	Stratified very fine sandy loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	50-90	20-35	5-15

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
270:												
Poujade---	0-4	Very fine sandy loam	CL-ML	A-4	0	0	100	100	85-95	50-65	20-30	5-10
	4-6	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	6-13	Silty clay loam, clay loam	CL, ML	A-6	0	0	100	80-100	80-95	60-90	35-40	10-15
	13-40	Loam, clay loam	CL	A-6	0	0	100	100	85-95	60-80	30-35	10-15
	40-65	Stratified very fine sandy loam to silty clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	85-95	50-90	20-35	5-15
Ausmus---	0-2	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-30	NP-5
	2-9	Silty clay loam	ML	A-6, A-7	0	0	100	100	95-100	85-95	35-45	10-15
	9-16	Silty clay loam, clay loam	ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-15
	16-29	Silt loam, loam	ML	A-4	0	0	100	100	85-95	65-80	30-35	5-10
	29-69	Loam	ML	A-4	0	0	100	100	85-95	60-75	30-35	5-10
271:												
Raz---	0-2	Cobbly fine sandy loam	SM	A-4	0-5	15-25	75-90	65-90	50-75	35-50	25-30	NP-5
	2-7	Gravelly clay loam, gravelly loam, cobbly clay loam	CL, GM, ML, SM	A-4, A-6	0	0-30	70-95	65-90	55-85	40-70	30-40	5-15
	7-12	Clay loam, loam	CL, ML	A-4, A-6	0	0	90-100	85-100	75-100	55-80	30-40	5-15
	12-23	Indurated			---	---	---	---	---	---	---	---
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
272:												
Raz---	0-2	Very cobbly loam	GM, ML, SM	A-4	0-5	25-55	65-95	60-90	50-80	40-65	30-35	5-10
	2-7	Gravelly clay loam, gravelly loam, cobbly clay loam	CL, GM, ML, SM	A-4, A-6	0	0-30	70-95	65-90	55-85	40-70	30-40	5-15
	7-12	Clay loam, loam	CL, ML	A-4, A-6	0	0	90-100	85-100	75-100	55-80	30-40	5-15
	12-23	Indurated			---	---	---	---	---	---	---	---
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Brace---	0-6	Stony loam	SC-SM, CL-ML	A-4	15-30	10-15	75-90	65-85	60-80	45-70	20-30	5-10
	6-13	Loam, sandy clay loam, clay loam	CL, CL-ML, SC-SM	A-4, A-6	0	0-10	85-100	80-90	75-90	40-70	25-40	5-15
	13-32	Sandy loam, loam	CL-ML, SC-SM	A-2, A-4	0	0-5	90-100	75-90	60-85	30-65	20-30	5-10
	32-36	Indurated			---	---	---	---	---	---	---	---
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
273:												
Raz---	0-2	Very cobbly loam	GM, ML, SM	A-4	0-5	25-55	65-95	60-90	50-80	40-65	30-35	5-10
	2-7	Gravelly clay loam, gravelly loam, cobbly clay loam	CL, GM, ML, SM	A-4, A-6	0	0-30	70-95	65-90	55-85	40-70	30-40	5-15
	7-12	Clay loam, loam	CL, ML	A-4, A-6	0	0	90-100	85-100	75-100	55-80	30-40	5-15
	12-23	Indurated			---	---	---	---	---	---	---	---
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
273:												
Brace----------	0-6	Stony loam	SC-SM, CL-ML	A-4	15-30	10-15	75-90	65-85	60-80	45-70	20-30	5-10
	6-13	Loam, sandy clay loam, clay loam	CL, CL-ML, SC-SM	A-4, A-6	0	0-10	85-100	80-90	75-90	40-70	25-40	5-15
	13-32	Sandy loam, loam	CL-ML, SC-SM	A-2, A-4	0	0-5	90-100	75-90	60-85	30-65	20-30	5-10
	32-36	Indurated			---	---	---	---	---	---	---	---
	36-46	Unweathered bedrock			---	---	---	---	---	---	---	---
274:												
Reallis---------	0-9	Sandy loam	SM	A-4, A-2	0	0	90-100	85-100	55-70	30-40	15-25	NP-5
	9-17	Sandy loam	SM	A-2, A-4	0	0	90-100	85-100	55-70	30-40	15-25	NP-5
	17-27	Sandy loam	SM	A-2, A-4	0	0	90-100	85-100	55-70	30-40	15-25	NP-5
	27-60	Gravelly sandy loam, gravelly loamy sand, loamy sand	SM	A-1, A-2	0	0	80-100	60-85	35-55	15-30	15-25	NP-5
275:												
Reallis---------	0-9	Fine sandy loam	SM	A-4	0	0	90-100	85-100	65-85	35-50	15-25	NP-5
	9-17	Sandy loam	SM	A-2, A-4	0	0	90-100	85-100	55-70	30-40	15-25	NP-5
	17-27	Sandy loam	SM	A-2, A-4	0	0	90-100	85-100	55-70	30-40	15-25	NP-5
	27-60	Gravelly sandy loam, gravelly loamy sand, loamy sand	SM	A-1, A-2	0	0	80-100	60-85	35-55	15-30	15-25	NP-5
276:												
Reese----------	0-4	Loam	ML	A-4, A-6	0	0	100	100	85-95	60-75	30-40	5-15
	4-10	Loam	ML	A-4, A-6	0	0	100	100	85-95	60-75	30-40	5-15
	10-33	Loam, clay loam	ML	A-4, A-6	0	0	100	100	85-100	60-80	30-40	5-15
	33-44	Loam, coarse sandy loam, sandy loam	ML, SM	A-4	0	0	100	100	60-90	35-65	20-40	NP-10
	44-60	Loam	ML	A-4, A-6	0	0	100	100	85-95	60-75	30-40	5-15
277:												
Reluctan--------	0-2	Loam	CL-ML	A-4	0-5	0-5	85-100	75-100	65-95	50-75	25-30	5-10
	2-9	Sandy loam, loam, cobbly loam	CL-ML, SC-SM	A-4	0-5	0-20	80-100	70-100	50-90	35-65	25-30	5-10
	9-26	Sandy clay loam, clay loam, cobbly sandy clay loam	CL, SC	A-6	0-5	0-20	80-100	70-95	55-90	40-70	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
278:												
Reluctan--------	0-2	Very stony silt loam	CL-ML, GC-GM	A-2, A-4	20-40	15-20	50-70	35-70	35-65	30-55	25-30	5-10
	2-9	Sandy loam, cobbly loam, loam	CL-ML, SC-SM	A-4	0-5	0-20	80-100	70-100	50-90	35-65	25-30	5-10
	9-15	Sandy clay loam, cobbly clay loam, clay loam	CL, SC	A-6	0-5	0-20	80-100	70-95	55-90	40-70	30-40	10-15
	15-26	Sandy clay loam, clay loam, cobbly sandy clay loam	CL, SC	A-6	0-5	0-20	80-100	70-95	55-90	40-70	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
279:												
Riddleranch-----	0-7	Very stony sandy loam	SC-SM	A-2	25-45	15-30	65-85	55-80	35-55	20-30	25-30	5-10
	7-16	Very cobbly loam, very cobbly clay loam, very stony loam	GC, CL-ML, GC-GM, SC-SM	A-4, A-6	5-30	25-45	60-85	50-80	45-75	35-60	25-40	5-15
	16-27	Extremely stony loam, extremely stony clay loam	GC, CL-ML, GC-GM, SC-SM	A-4, A-6	40-60	25-45	50-90	40-90	35-85	35-65	25-40	5-15
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Lambring--------	0-7	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
280:												
Riddleranch-----	0-7	Very stony loam	CL-ML, SC-SM	A-4	25-45	15-30	65-85	55-80	50-75	40-55	25-30	5-10
	7-16	Very cobbly loam, very cobbly clay loam, very stony loam	GC, CL-ML, GC-GM, SC-SM	A-4, A-6	5-30	25-45	60-85	50-80	45-75	35-60	25-40	5-15
	16-27	Extremely stony loam, extremely stony clay loam	GC, CL-ML, GC-GM, SC-SM	A-4, A-6	40-60	25-45	50-90	40-90	35-85	35-65	25-40	5-15
	27-37	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
281:												
Rinconflat------	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-30	10-15	75-95	65-90	55-85	40-65	25-35	5-10
	4-13	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0-5	0-5	65-95	55-75	50-65	40-50	25-35	5-10
	13-29	Very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	25-45	50-80	35-65	30-55	25-45	25-35	5-10
	29-61	Very gravelly sandy loam, cobbly sandy loam, very cobbly sandy clay loam	GC-GM, GM, SC-SM, SM	A-1, A-2	0-5	15-45	50-80	45-75	30-50	15-30	25-35	5-10
282:												
Rio King--------	0-4	Loam	ML	A-4	0	0	100	90-100	70-85	55-60	20-25	NP-5
	4-17	Loam	ML	A-4	0	0	100	90-100	70-85	55-60	20-25	NP-5
	17-27	Sandy loam, loam	ML, SM	A-4	0	0	100	90-100	70-85	40-65	20-25	NP-5
	27-45	Very fine sandy loam, sandy loam	ML, SM	A-4	0	0	100	90-100	85-100	45-70	20-25	NP-5
	45-64	Sandy loam	SM	A-4	0	0	100	90-100	70-75	35-50	20-25	NP-5
283:												
Rio King--------	0-4	Loam	ML	A-4	0	0	100	90-100	70-85	55-60	20-25	NP-5
	4-17	Loam	ML	A-4	0	0	100	90-100	70-85	55-60	20-25	NP-5
	17-27	Sandy loam, loam	ML, SM	A-4	0	0	100	90-100	70-85	40-65	20-25	NP-5
	27-45	Very fine sandy loam, sandy loam	ML, SM	A-4	0	0	100	90-100	85-100	45-70	20-25	NP-5
	45-64	Sandy loam	SM	A-4	0	0	100	90-100	70-75	35-50	20-25	NP-5
Droval----------	0-4	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-75	25-35	5-10
	4-22	Silty clay	CH, CL	A-7	0	0	100	100	95-100	90-95	45-55	20-30
	22-32	Clay	CH	A-7	0	0	100	100	90-100	75-95	55-65	30-40
	32-61	Silty clay, clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
284:												
Risley----------	0-3	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-5	70-90	55-75	50-65	40-50	25-35	5-10
	3-25	Clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-5	85-100	70-100	70-100	55-85	40-55	15-30
	25-37	Gravelly clay loam, clay loam	SC, CL, GC, GM, ML	A-6, A-7	0	0-5	65-90	50-85	45-80	35-65	35-45	10-20
	37-39	Very gravelly sandy clay loam, very gravelly clay loam	GC, GM, SC, SM	A-2	0	0-5	55-70	35-50	30-50	15-35	35-45	10-20
	39-49	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
284:												
Gumble----------	0-3	Very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-75	35-55	30-50	25-45	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
285:												
Risley----------	0-3	Silty clay loam	CL	A-6	0	0	85-95	75-85	70-80	65-75	25-30	10-15
	3-25	Clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-5	85-100	70-100	70-100	55-85	40-55	15-30
	25-37	Gravelly clay loam, clay loam	SC, CL, GC, GM, ML	A-6, A-7	0	0-5	65-90	50-85	45-80	35-65	35-45	10-20
	37-39	Very gravelly sandy clay loam, very gravelly clay loam	GC, GM, SC, SM	A-2	0	0-5	55-70	35-50	30-50	15-35	35-45	10-20
	39-49	Weathered bedrock			---	---	---	---	---	---	---	---
Gumble----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	20-40	60-80	40-75	35-65	25-50	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---
Torriorthents---	0-7	Variable			---	---	---	---	---	---	---	---
	7-17	Weathered bedrock			---	---	---	---	---	---	---	---
286:												
Risley----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	15-40	5-20	60-80	45-65	40-55	30-45	25-35	5-10
	3-25	Clay, gravelly clay, gravelly clay loam	CH, CL	A-7	0	0-5	85-100	70-100	70-100	55-85	40-55	15-30
	25-37	Gravelly clay loam, clay loam	SC, CL, GC, GM, ML	A-6, A-7	0	0-5	65-95	50-85	45-80	35-65	35-45	10-20
	37-39	Very gravelly sandy clay loam, very gravelly clay loam	GC, GM, SC, SM	A-2	0	0-5	55-70	35-50	30-50	15-35	35-45	10-20
	39-49	Weathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
287:												
Robson----------	0-4	Cobbly clay loam	ML	A-6	0	15-30	75-95	70-90	65-90	50-70	35-40	10-15
	4-13	Very gravelly clay, very cobbly clay, extremely gravelly clay	GC, SC	A-2, A-7	0-5	10-40	45-70	30-55	25-50	20-50	45-55	20-30
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Anawalt---------	0-2	Gravelly loam	SC-SM	A-4	0	0	85-95	65-75	55-65	45-50	25-30	5-10
	2-11	Clay loam, loam	CL, CL-ML	A-4, A-6	0	0-5	85-100	75-95	65-90	50-70	25-40	5-15
	11-16	Clay, cobbly clay	CH, CL	A-7	0	0-15	75-100	60-95	60-90	50-85	40-65	15-35
	16-26	Unweathered bedrock			---	---	---	---	---	---	---	---
288:												
Robson----------	0-4	Very cobbly clay loam	GM, ML, SM	A-2, A-6	0-5	20-40	55-85	40-70	35-70	30-55	35-40	10-15
	4-13	Very gravelly clay, very cobbly clay, extremely gravelly clay	GC, SC	A-2, A-7	0-5	10-40	45-70	30-55	25-50	20-50	45-55	20-30
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Fourwheel-------	0-7	Clay loam	CL, ML	A-6	0	0-5	90-100	85-95	80-90	60-70	35-40	10-15
	7-22	Clay, silty clay	CH	A-7	0	0-5	85-100	75-95	70-90	65-85	50-65	25-40
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
289:												
Robson----------	0-4	Very cobbly clay loam	GM, ML, SM	A-2, A-6	0-5	20-40	55-85	40-70	35-70	30-55	35-40	10-15
	4-13	Very gravelly clay, very cobbly clay, extremely gravelly clay	GC, SC	A-2, A-7	0-5	10-40	45-70	30-55	25-50	20-50	45-55	20-30
	13-23	Unweathered bedrock			---	---	---	---	---	---	---	---
Felcher---------	0-10	Very cobbly loam	GM, SM	A-2, A-4	5-25	15-45	55-85	45-75	40-65	30-50	30-35	5-10
	10-22	Very cobbly clay loam, very gravelly clay loam, very cobbly loam	GC, GM, SC, SM	A-2, A-4, A-6	0-5	15-45	60-80	50-70	40-65	30-50	30-40	5-15
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
290:												
Roca----------	0-8	Very cobbly clay loam	CL, ML, SC, SM	A-6	0	25-45	70-95	55-90	50-90	40-70	35-40	10-15
	8-16	Very gravelly clay loam, very gravelly clay	GC, SC	A-7	0	10-25	60-80	45-60	40-60	35-50	40-55	15-30
	16-22	Very cobbly clay loam, very cobbly clay	CL, GC, SC	A-2, A-6, A-7	0	25-45	60-85	40-75	35-70	30-65	35-45	10-20
	22-32	Unweathered bedrock			---	---	---	---	---	---	---	---
291:												
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
292:												
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Baconcamp-------	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-10	5-15	60-70	45-55	40-50	30-40	25-35	5-10
	4-20	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-4, A-2	0-5	0-10	50-80	40-75	35-65	25-50	25-35	5-10
	20-35	Very gravelly loam, very gravelly clay loam, very cobbly loam	GM, ML, SC-SM, SM	A-2, A-4	0-10	5-35	50-85	35-80	30-75	25-65	25-35	5-10
	35-45	Unweathered bedrock			---	---	---	---	---	---	---	---
293:												
Royst-----------	0-3	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-4	5-20	25-45	65-85	55-75	50-65	40-50	25-35	5-10
	3-7	Cobbly loam	CL-ML, ML	A-4	0-5	15-30	80-95	75-90	65-80	50-65	25-35	5-10
	7-14	Very stony clay loam, very cobbly clay loam, very cobbly clay	CL	A-7	15-60	5-35	75-95	65-90	60-85	50-80	40-50	15-25
	14-22	Very stony clay loam, very cobbly clay loam, very cobbly clay	CL	A-7	15-60	5-35	75-95	65-90	60-85	50-80	40-50	15-25
	22-23	Weathered bedrock			---	---	---	---	---	---	---	---
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-70	40-55	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
294:												
Rubble land-----	0-60	Fragmental material			---	---	---	---	---	---	---	---
Nuss----------	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-30	5-15	75-95	70-90	60-80	45-65	25-35	5-10
	4-12	Gravelly loam, gravelly clay loam	CL-ML, ML, SC-SM, SM	A-4	0	0-15	65-85	60-75	50-70	40-55	25-35	5-10
	12-15	Cobbly loam, cobbly clay loam	CL-ML, ML	A-4	0	15-40	80-95	75-90	65-85	50-70	25-35	5-10
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
Ateron----------	0-5	Extremely stony silt loam	GM, ML, SM	A-4	35-60	20-30	60-80	45-70	40-70	35-60	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-40	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
295:												
Sagehen---------	0-10	Stony clay loam	ML	A-6	15-20	5-15	80-90	70-90	70-90	50-70	35-40	10-15
	10-19	Very gravelly clay loam, very gravelly loam	GM, SM	A-2, A-6	0-10	0-15	55-70	35-60	30-60	25-50	35-40	10-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
296:												
Sagehen---------	0-10	Stony clay loam	ML	A-6	15-20	5-15	80-90	70-90	70-90	50-70	35-40	10-15
	10-19	Very gravelly clay loam, very gravelly loam	GM, SM	A-2, A-6	0-10	0-15	55-70	35-60	30-60	25-50	35-40	10-15
	19-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
297:												
Sandgap---------	0-2	Sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-70	5-15	0-14	NP
	2-19	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-75	5-25	0-14	NP
	19-30	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-75	5-25	0-14	NP
	30-45	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-75	5-25	0-14	NP
	45-60	Sandy loam, loamy sand	SM	A-2	0	0	100	95-100	50-75	15-30	15-20	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
298:												
Sandgap---	0-2	Sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-70	5-15	0-14	NP
	2-19	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-75	5-25	0-14	NP
	19-30	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-75	5-25	0-14	NP
	30-45	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-75	5-25	0-14	NP
	45-60	Sandy loam, loamy sand	SM	A-2	0	0	100	95-100	50-75	15-30	15-20	NP-5
299:												
Seharney---	0-2	Cobbly silt loam	CL-ML, ML	A-4	0	15-30	80-95	70-90	65-90	55-80	25-35	5-10
	2-5	Silt loam	CL-ML, ML	A-4	0	0-10	80-95	70-95	65-90	55-80	25-35	5-10
	5-11	Cobbly silt loam, cobbly loam	CL-ML, ML	A-4	0	15-35	80-95	75-90	65-90	50-80	25-35	5-10
	11-17	Very cobbly silt loam, very cobbly loam	CL-ML, GM, ML, SM	A-2, A-4	0-10	30-55	70-90	55-80	50-75	30-70	25-35	5-10
	17-24	Cemented			---	---	---	---	---	---	---	---
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
300:												
Skedaddle---	0-3	Very cobbly clay loam	GC, SC	A-6	0-15	20-40	65-80	55-65	50-60	40-45	30-35	10-15
	3-8	Very cobbly clay loam, very stony clay loam, very cobbly loam	CL, GC, SC	A-6	0-40	15-40	65-90	55-85	50-80	35-65	25-35	10-15
	8-11	Very cobbly clay loam, very cobbly loam	GC, SC	A-6	0-15	20-40	65-75	55-65	50-60	35-45	25-35	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Atlow---	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop---	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
301:												
Skedaddle-------	0-3	Very cobbly clay loam	GC, SC	A-6	0-15	20-40	65-80	55-65	50-60	40-45	30-35	10-15
	3-8	Very cobbly clay loam, very stony clay loam, very cobbly loam	CL, GC, SC	A-6	0-40	15-40	65-90	55-85	50-80	35-65	25-35	10-15
	8-11	Very cobbly clay loam, very cobbly loam	GC, SC	A-6	0-15	20-40	65-75	55-65	50-60	35-45	25-35	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Atlow-----------	0-3	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-25	5-20	60-75	45-65	40-60	35-50	25-35	5-10
	3-11	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	GC, GM, SC, SM	A-2, A-6	0-15	15-30	55-70	35-70	30-65	25-50	35-40	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
302:												
Skedaddle-------	0-3	Very cobbly clay loam	GC, SC	A-6	0-15	20-40	65-80	55-65	50-60	40-45	30-35	10-15
	3-8	Very cobbly clay loam, very stony clay loam, very cobbly loam	CL, GC, SC	A-6	0-40	15-40	65-90	55-85	50-80	35-65	25-35	10-15
	8-11	Very cobbly clay loam, very cobbly loam	GC, SC	A-6	0-15	20-40	65-75	55-65	50-60	35-45	25-35	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
303:												
Skedaddle, south slopes---------	0-3	Very gravelly sandy loam	GC-GM, SC-SM	A-1, A-2	0	0-5	50-65	35-50	25-40	15-25	20-25	5-10
	3-8	Very cobbly clay loam, very stony clay loam, very cobbly loam	CL, GC, SC	A-6	0-40	15-40	65-90	55-85	50-80	35-65	25-35	10-15
	8-11	Very cobbly clay loam, very cobbly loam	GC, SC	A-6	0-15	20-40	65-75	55-65	50-60	35-45	25-35	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
303:												
Skedaddle, north slopes---	0-3	Very cobbly clay loam	GC, SC	A-6	0-15	20-40	65-80	55-65	50-60	40-45	30-35	10-15
	3-8	Very cobbly clay loam, very stony clay loam, very cobbly loam	CL, GC, SC	A-6	0-40	15-40	65-90	55-85	50-80	35-65	25-35	10-15
	8-11	Very cobbly clay loam, very cobbly loam	GC, SC	A-6	0-15	20-40	65-75	55-65	50-60	35-45	25-35	10-15
	11-21	Unweathered bedrock			---	---	---	---	---	---	---	---
304:												
Skidoosprings---	0-11	Sandy loam	SM	A-4	0	0-5	90-100	85-100	50-70	35-50	20-25	NP-5
	11-23	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	23-30	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	30-41	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	41-49	Indurated			---	---	---	---	---	---	---	---
	49-60	Coarse sandy loam	SM	A-2	0	0	90-95	75-85	40-55	25-35	0-14	NP
305:												
Skidoosprings---	0-11	Sandy loam	SM	A-4	0	0-5	90-100	85-100	50-70	35-50	20-25	NP-5
	11-23	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	23-30	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	30-41	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	41-49	Indurated			---	---	---	---	---	---	---	---
	49-60	Coarse sandy loam	SM	A-2	0	0	90-95	75-85	40-55	25-35	0-14	NP
306:												
Skunkfarm-------	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	80-90	25-30	5-10
	2-13	Clay loam, silty clay loam	CL	A-6	0	0	100	100	100	75-95	30-40	10-15
	13-18	Clay loam, loam	CL	A-6	0	0	100	100	100	75-85	30-40	10-15
	18-29	Loam, silty clay loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-95	25-35	5-10
	29-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	90-95	35-40	20-25	NP-5
Cumulic Haploxerolls---	0-25	Loam	ML	A-4	0	0-5	90-100	85-100	70-95	50-75	25-35	NP-10
	25-60	Variable			---	---	---	---	---	---	---	---
307:												
Skunkfarm-------	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	80-90	25-30	5-10
	2-13	Clay loam, silty clay loam	CL	A-6	0	0	100	100	100	75-95	30-40	10-15
	13-18	Clay loam, loam	CL	A-6	0	0	100	100	100	75-85	30-40	10-15
	18-29	Loam, silty clay loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-95	25-35	5-10
	29-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	90-95	35-40	20-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
307:												
Doubleo---------	0-3	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	65-75	25-35	5-10
	3-10	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	90-95	40-55	15-30
	10-20	Clay, silty clay	MH, CH	A-7	0	0	100	100	95-100	80-90	50-65	20-35
	20-28	Clay loam, silty clay loam	CL	A-7	0	0	100	100	90-100	75-85	40-45	15-20
	28-45	Fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	75-95	40-75	15-25	NP-5
	45-60	Loam, silt loam	CL-ML	A-4	0	0	100	100	85-95	65-75	25-30	5-10
308:												
Skunkfarm-------	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	80-90	25-30	5-10
	2-13	Clay loam, silty clay loam	CL	A-6	0	0	100	100	100	75-95	30-40	10-15
	13-18	Clay loam, loam	CL	A-6	0	0	100	100	100	75-85	30-40	10-15
	18-29	Loam, silty clay loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-95	25-35	5-10
	29-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	90-95	35-40	20-25	NP-5
Mcbain----------	0-5	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	5-22	Loam	CL	A-6	0	0	100	100	85-95	60-75	25-30	10-15
	22-27	Clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-40	15-20
	27-37	Very fine sandy loam, sandy loam	CL-ML, SC-SM	A-4	0	0	100	100	60-90	40-60	20-25	5-10
	37-43	Clay loam	CL	A-6	0	0	100	100	90-100	70-80	30-35	15-20
	43-60	Loam	CL	A-6	0	0	100	100	85-95	60-75	25-30	10-15
Doubleo---------	0-3	Loam	CL-ML, ML	A-4	0	0	100	100	85-95	65-75	25-35	5-10
	3-10	Silty clay, silty clay loam	CH, CL	A-7	0	0	100	100	95-100	90-95	40-55	15-30
	10-20	Clay, silty clay	MH, CH	A-7	0	0	100	100	95-100	80-90	50-65	20-35
	20-28	Clay loam, silty clay loam	CL	A-7	0	0	100	100	90-100	75-85	40-45	15-20
	28-45	Fine sandy loam, silt loam	ML, SM	A-4	0	0	100	100	75-95	40-75	15-25	NP-5
	45-60	Loam, silt loam	CL-ML	A-4	0	0	100	100	85-95	65-75	25-30	5-10
309:												
Skunkfarm-------	0-2	Silt loam	CL-ML	A-4	0	0	100	100	100	80-90	25-30	5-10
	2-13	Clay loam, silty clay loam	CL	A-6	0	0	100	100	100	75-95	30-40	10-15
	13-18	Clay loam, loam	CL	A-6	0	0	100	100	100	75-85	30-40	10-15
	18-29	Loam, silty clay loam	CL-ML, ML	A-4	0	0	100	100	85-95	60-95	25-35	5-10
	29-60	Fine sandy loam	SC-SM, SM	A-4	0	0	100	100	90-95	35-40	20-25	NP-5
Skidoosprings---	0-11	Sandy loam	SM	A-4	0	0-5	90-100	85-100	50-70	35-50	20-25	NP-5
	11-23	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	23-30	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	30-41	Sandy loam	SM	A-4	0	0	90-100	85-100	50-70	35-50	20-25	NP-5
	41-49	Indurated			---	---	---	---	---	---	---	---
	49-60	Coarse sandy loam	SM	A-2	0	0	90-95	75-85	40-55	25-35	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
310:												
Spangenburg-----	0-2	Silty clay loam	CL, ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	2-15	Silty clay, clay	CH	A-7	0	0	100	100	90-100	80-95	50-65	25-40
	15-34	Silty clay loam, silt loam	CL, ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-20
	34-60	Loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	65-80	25-35	5-10
311:												
Spangenburg-----	0-10	Silty clay loam	CL, ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	10-15	Silty clay, clay	CH	A-7	0	0	100	100	90-100	80-95	50-65	25-40
	15-34	Silty clay loam, silt loam	CL, ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-20
	34-60	Loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	65-80	25-35	5-10
312:												
Spangenburg-----	0-10	Silty clay loam	CL, ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	10-15	Silty clay, clay	CH	A-7	0	0	100	100	90-100	80-95	50-65	25-40
	15-34	Silty clay loam, silt loam	CL, ML	A-6, A-7	0	0	100	100	90-100	70-95	35-45	10-20
	34-60	Loam, silt loam	CL, CL-ML, ML	A-4	0	0	100	100	85-95	65-80	25-35	5-10
313:												
Srednic---------	0-2	Very gravelly coarse sandy loam	GM, SM	A-1	0	0	50-70	35-50	20-35	15-20	15-25	NP-5
	2-17	Gravelly loam, gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2, A-4	0	0	60-85	45-75	30-65	15-50	15-25	NP-5
	17-25	Gravelly sandy loam, gravelly loam	GM, SM	A-2, A-4, A-1	0	0-10	65-85	55-75	35-65	20-50	15-25	NP-5
	25-27	Cemented			---	---	---	---	---	---	---	---
	27-30	Indurated			---	---	---	---	---	---	---	---
	30-40	Unweathered bedrock			---	---	---	---	---	---	---	---
Aval------------	0-2	Very gravelly coarse sandy loam	GM, SM	A-1	0	0	50-70	35-50	20-35	15-20	15-25	NP-5
	2-18	Gravelly sandy loam, gravelly loam, gravelly coarse sandy loam	GM, SM	A-1, A-2, A-4	0	0-5	65-85	55-75	35-65	20-50	15-25	NP-5
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
314:												
Stampede--------	0-3	Loam	CL-ML, ML	A-4	0	0	85-100	75-100	65-95	50-75	25-35	5-10
	3-11	Clay loam	ML	A-6	0	0	85-100	75-100	70-100	55-80	35-40	10-15
	11-19	Clay	CH, CL	A-7	0	0	85-100	75-100	70-100	65-95	45-55	20-30
	19-23	Very gravelly sandy clay loam	GM, GP-GM, SM, SP-SM	A-2	0	0-5	40-70	25-50	20-45	10-30	35-40	10-15
	23-33	Indurated			---	---	---	---	---	---	---	---
	33-60	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1, A-2	0	0-5	50-80	35-70	20-50	15-30	20-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
315:												
Swaler----------	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-27	Clay, silty clay loam, silty clay	CH, CL	A-7	0	0	95-100	90-100	85-100	75-95	40-60	15-35
	27-60	Silty clay loam, clay loam	CH, CL	A-7	0	0	95-100	90-100	80-100	65-80	40-55	15-30
316:												
Swaler----------	0-10	Silt loam	CL-ML	A-4	0	0	95-100	90-100	80-100	65-90	20-30	5-10
	10-27	Clay, silty clay loam, silty clay	CH, CL	A-7	0	0	95-100	90-100	85-100	75-95	40-60	15-35
	27-60	Silty clay loam, clay loam	CH, CL	A-7	0	0	95-100	90-100	80-100	65-80	40-55	15-30
Swalesilver-----	0-6	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	6-23	Clay, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-45
	23-61	Stratified silt loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	80-100	70-100	50-90	20-35	5-15
317:												
Swalesilver-----	0-6	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	6-23	Clay, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-45
	23-61	Stratified silt loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	80-100	70-100	50-90	20-35	5-15
318:												
Swalesilver-----	0-6	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	6-23	Clay, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-45
	23-61	Stratified silt loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	80-100	70-100	50-90	20-35	5-15
319:												
Swalesilver-----	0-6	Silt loam	CL-ML	A-4	0	0	100	100	90-100	70-90	20-30	5-10
	6-23	Clay, silty clay	CH	A-7	0	0	100	100	90-100	75-95	50-70	25-45
	23-61	Stratified silt loam to clay loam	CL, CL-ML	A-4, A-6	0	0	100	80-100	70-100	50-90	20-35	5-15
320:												
Teguro----------	0-2	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0-5	65-80	55-75	50-70	35-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
321:												
Teguro----------	0-2	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-15	30-45	60-80	50-75	45-70	30-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
322:												
Teguro----------	0-2	Very stony loam	GC-GM, GM	A-2, A-4	20-30	5-20	55-70	45-70	45-60	30-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
323:												
Teguro----------	0-2	Very gravelly loam	GC-GM, GM	A-1, A-2	0-5	5-15	40-55	30-50	30-45	20-35	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
Anatone, moist--	0-8	Very gravelly loam	GC-GM, GM	A-2, A-4	0-5	15-20	40-65	35-55	30-55	20-40	25-35	5-10
	8-14	Very cobbly clay loam, very gravelly sandy clay loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	15-40	40-80	35-75	30-70	20-50	25-35	5-10
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---
324:												
Teguro----------	0-2	Very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-15	30-45	60-80	50-75	45-70	30-50	25-35	5-10
	2-5	Loam, cobbly loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	10-15	70-95	60-95	50-85	35-70	25-35	5-10
	5-14	Gravelly clay loam, cobbly clay loam, gravelly loam	ML, SM	A-6	0-10	10-40	70-90	60-90	50-90	35-70	35-40	10-15
	14-24	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
324:												
Ateron----------	0-5	Very stony loam	GM, SM	A-4	20-35	15-25	60-80	55-75	50-65	40-50	25-35	5-10
	5-12	Very cobbly clay loam	ML, SM	A-6	5-20	20-55	70-90	60-80	55-75	45-60	35-40	10-15
	12-18	Extremely stony clay, very stony clay, very cobbly clay	CH, CL, GC, SC	A-7	20-40	30-55	60-80	45-70	40-70	35-60	45-55	20-30
	18-28	Unweathered bedrock			---	---	---	---	---	---	---	---
325:												
Thenarrows------	0-3	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	3-14	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	14-22	Loamy sand, sandy loam	SM	A-2, A-4	0	0	100	100	65-75	25-45	15-25	NP-5
	22-31	Sandy loam	SM	A-4	0	0	100	100	65-75	40-50	20-25	NP-5
	31-54	Sandy loam, loamy sand	SM	A-2, A-4	0	0	100	100	65-75	25-50	15-25	NP-5
	54-60	Loamy sand	SM	A-2	0	0	100	100	65-75	25-35	0-14	NP
Duckclub--------	0-5	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	5-27	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	27-32	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	32-41	Sandy clay loam, sandy loam	SC-SM, SM	A-4	0	0	100	100	65-85	35-45	25-35	5-10
	41-63	Loam, sandy loam, loamy fine sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	65-85	25-65	15-25	NP-10
326:												
Thenarrows------	0-3	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	3-14	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	14-22	Loamy sand, sandy loam	SM	A-2, A-4	0	0	100	100	65-75	25-45	15-25	NP-5
	22-31	Sandy loam	SM	A-4	0	0	100	100	65-75	40-50	20-25	NP-5
	31-54	Sandy loam, loamy sand	SM	A-2, A-4	0	0	100	100	65-75	25-50	15-25	NP-5
	54-60	Loamy sand	SM	A-2	0	0	100	100	65-75	25-35	0-14	NP
Duckclub--------	0-5	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	5-27	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	27-32	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	32-41	Sandy clay loam, sandy loam	SC-SM, SM	A-4	0	0	100	100	65-85	35-45	25-35	5-10
	41-63	Loam, sandy loam, loamy fine sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	65-85	25-65	15-25	NP-10
Dentdraw--------	0-6	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	20-25	NP-5
	6-9	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	9-18	Silt loam, fine sandy loam	ML	A-4	0	0	100	100	70-100	50-80	20-25	NP-5
	18-27	Clay loam, sandy clay loam	CL, CL-ML	A-4, A-6	0	0	100	100	80-100	50-80	25-35	5-15
	27-42	Sandy loam	SM	A-2, A-4	0	0	100	100	60-70	30-40	20-25	NP-5
	42-60	Loamy fine sand, loamy sand	SM	A-2	0	0	100	100	50-75	20-30	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
327:												
Thenarrows------	0-3	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	3-14	Sandy loam	SM	A-4	0	0	100	100	65-75	35-45	20-25	NP-5
	14-22	Loamy sand, sandy loam	SM	A-2, A-4	0	0	100	100	65-75	25-45	15-25	NP-5
	22-31	Sandy loam	SM	A-4	0	0	100	100	65-75	40-50	20-25	NP-5
	31-54	Sandy loam, loamy sand	SM	A-2, A-4	0	0	100	100	65-75	25-50	15-25	NP-5
	54-60	Loamy sand	SM	A-2	0	0	100	100	65-75	25-35	0-14	NP
Duckclub--------	0-5	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	5-27	Loamy fine sand	SM	A-2	0	0	100	100	65-80	20-35	0-14	NP
	27-32	Fine sandy loam	ML, SM	A-4	0	0	100	100	70-85	40-55	20-25	NP-5
	32-41	Sandy clay loam, sandy loam	SC-SM, SM	A-4	0	0	100	100	65-85	35-45	25-35	5-10
	41-63	Loam, sandy loam, loamy fine sand	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	100	100	65-85	25-65	15-25	NP-10
Sandgap---------	0-2	Sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-70	5-15	0-14	NP
	2-19	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-75	5-25	0-14	NP
	19-30	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	100	50-75	5-25	0-14	NP
	30-45	Loamy sand, sand	SM, SP-SM	A-2, A-3	0	0	100	95-100	50-75	5-25	0-14	NP
	45-60	Sandy loam, loamy sand	SM	A-2	0	0	100	95-100	50-75	15-30	15-20	NP-5
328:												
Ticino----------	0-9	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	15-40	75-95	65-90	55-85	40-70	25-35	5-10
	9-26	Sandy clay loam, clay loam, gravelly sandy clay loam	ML, SM	A-2, A-6	0	0-5	70-95	55-90	45-85	30-70	35-40	10-15
	26-29	Weathered bedrock			---	---	---	---	---	---	---	---
	29-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Stony loam	CL-ML, ML, SC-SM, SM	A-4	15-30	5-15	70-90	60-90	55-80	40-65	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
329:												
Ticino----------	0-9	Gravelly loam	SM, CL-ML, ML	A-4	0-5	0-5	85-100	55-75	50-65	40-60	25-35	5-10
	9-26	Sandy clay loam, clay loam, gravelly sandy clay loam	ML, SM	A-2, A-6	0	0-5	70-95	55-90	45-85	30-70	35-40	10-15
	26-29	Weathered bedrock			---	---	---	---	---	---	---	---
	29-39	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
329:												
Observation-----	0-4	Stony loam	CL-ML, ML, SC-SM, SM	A-4	10-15	5-15	80-90	70-90	65-85	45-65	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
330:												
Ticino----------	0-9	Cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-5	15-40	75-95	65-90	55-85	40-70	25-35	5-10
	9-26	Sandy clay loam, clay loam, gravelly sandy clay loam	ML, SM	A-2, A-6	0	0-5	70-95	55-90	45-85	30-70	35-40	10-15
	26-29	Weathered bedrock			---	---	---	---	---	---	---	---
	29-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
331:												
Toll------------	0-5	Sand	SM, SP-SM	A-2	0	0	100	100	55-70	10-25	0-14	NP
	5-13	Sand, loamy sand	SM, SP-SM	A-2	0	0	100	100	55-75	10-25	0-14	NP
	13-60	Sand, loamy sand	SM, SP-SM	A-2	0	0	100	100	55-75	10-25	0-14	NP
332:												
Toll------------	0-5	Sand	SM, SP-SM	A-2	0	0	100	100	55-70	10-25	0-14	NP
	5-13	Sand, loamy sand	SM, SP-SM	A-2	0	0	100	100	55-75	10-25	0-14	NP
	13-60	Sand, loamy sand	SM, SP-SM	A-2	0	0	100	100	55-75	10-25	0-14	NP
Nevador---------	0-3	Sandy loam	SM	A-2	0	0	85-100	75-95	50-65	30-35	20-25	NP-5
	3-7	Loam	CL-ML, ML	A-4	0	0	85-100	75-100	65-95	50-75	25-35	5-10
	7-18	Clay loam	CL, ML	A-6	0	0	85-100	75-100	70-100	55-80	35-40	10-15
	18-32	Sandy loam	SM	A-2, A-4	0	0	85-100	75-100	50-70	30-40	15-20	NP-5
	32-62	Sandy loam, gravelly sandy loam	SM	A-1, A-2	0	0	65-90	50-85	30-55	15-30	15-20	NP-5
333:												
Torriorthents---	0-7	Variable			---	---	---	---	---	---	---	---
	7-17	Weathered bedrock			---	---	---	---	---	---	---	---
Gumble----------	0-3	Very gravelly silt loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	50-75	35-55	30-50	25-45	25-35	5-10
	3-8	Loam	CL, CL-ML, ML	A-4	0	0-5	80-90	75-85	60-80	50-70	25-35	5-10
	8-14	Clay loam, clay, gravelly clay	CH, CL	A-7	0	0-5	75-95	60-95	60-95	50-90	40-55	15-30
	14-16	Silty clay loam, clay loam	CL, ML	A-6, A-7	0	0-5	95-100	90-100	90-100	70-90	35-45	10-20
	16-26	Weathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
334:												
Tumtum----------	0-2	Cobbly loam	ML, SM	A-4	0	15-40	75-95	70-90	60-85	45-65	25-35	5-10
	2-12	Clay loam	CL, ML	A-6	0	0	90-100	85-100	75-100	60-90	35-40	10-15
	12-25	Indurated			---	---	---	---	---	---	---	---
	25-60	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1	0	0-10	50-65	45-60	25-40	15-25	0-14	NP
335:												
Tumtum----------	0-2	Cobbly loam	ML, SM	A-4	0	15-40	75-95	70-90	60-85	45-65	25-35	5-10
	2-12	Clay loam	CL, ML	A-6	0	0	90-100	85-100	75-100	60-90	35-40	10-15
	12-25	Indurated			---	---	---	---	---	---	---	---
	25-60	Gravelly sandy loam, very gravelly sandy loam	GM, SM	A-1	0	0-10	50-65	45-60	25-40	15-25	0-14	NP
336:												
Turpin----------	0-4	Sandy clay loam	CL, SC	A-6	0	0	100	100	80-90	35-55	30-40	10-20
	4-8	Silt loam	ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	8-13	Clay loam, loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-20
	13-38	Clay loam, loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-20
	38-48	Clay loam, loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-20
	48-60	Clay loam, loam	CL	A-6	0	0	100	100	85-100	60-80	30-40	10-20
337:												
Vanwyper--------	0-3	Extremely stony silty clay loam	GC, CL, GM, ML, SM	A-2, A-6, A-7	30-55	15-45	50-80	35-70	30-70	30-65	35-45	10-20
	3-15	Cobbly clay, very cobbly clay	CH, CL, GC, SC	A-7	0-10	10-40	55-90	45-85	40-80	35-75	45-60	20-35
	15-24	Very gravelly clay loam, very cobbly clay loam	CL, GC, SC, SM	A-2, A-6, A-7	0-10	10-40	50-85	35-80	30-80	25-65	35-45	10-20
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
338:												
Vergas----------	0-6	Gravelly loam	GC-GM, GM, SC-SM, SM	A-4	0	0	60-80	50-75	45-65	35-50	25-35	5-10
	6-14	Gravelly sandy clay loam, clay loam, sandy clay loam	CL, SC	A-4, A-6	0	0	75-100	60-100	50-95	35-75	25-40	5-15
	14-20	Gravelly loamy sand, very gravelly loamy sand	GM, GP-GM, SM, SP-SM	A-1	0	0	50-80	35-75	20-50	10-20	0-14	NP
	20-62	Very gravelly coarse sand, extremely gravelly coarse sand	GP, SP	A-1	0	0-5	40-70	20-50	15-30	0-5	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
339:												
Vil	0-6	Silt loam	CL-ML	A-4	0	0	100	90-100	80-95	65-80	20-30	5-10
	6-9	Loam	CL-ML	A-4	0	0	100	90-100	75-90	55-65	25-30	5-10
	9-13	Clay loam, loam	CL	A-6	0	0	90-100	85-100	70-90	55-80	30-40	10-15
	13-16	Gravelly clay loam, gravelly loam	CL, SC	A-6	0	0-10	80-90	65-75	55-70	45-55	30-40	10-15
	16-37	Indurated			---	---	---	---	---	---	---	---
	37-60	Very gravelly sandy loam	GM, SM	A-1	0-5	0-20	55-75	35-55	25-40	15-25	20-25	NP-5
340:												
Vining	0-2	Loam	CL-ML, ML, SC-SM, SM	A-4	0	0	95-100	75-100	70-90	45-65	20-30	5-10
	2-13	Sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	60-90	30-60	20-30	5-10
	13-29	Sandy loam, loam	CL-ML, ML, SC-SM, SM	A-4, A-2	0	0	95-100	75-100	60-90	30-60	20-30	5-10
	29-39	Unweathered bedrock			---	---	---	---	---	---	---	---
341:												
Vining	0-2	Loamy sand	SM	A-2	0	0	95-100	80-100	65-85	20-30	0-14	NP
	2-13	Sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	60-90	30-60	20-30	5-10
	13-29	Sandy loam, loam	CL-ML, ML, SC-SM, SM	A-2, A-4	0	0	95-100	75-100	60-90	30-60	20-30	5-10
	29-39	Unweathered bedrock			---	---	---	---	---	---	---	---
Tuffo	0-2	Fine sandy loam	SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-5
	2-7	Fine sandy loam, sandy loam	SM	A-4	0	0	100	90-100	70-85	35-50	15-25	NP-5
	7-17	Weathered bedrock			---	---	---	---	---	---	---	---
342:												
Vitale	0-3	Very stony loam	SC-SM, SM, CL-ML, ML	A-4	30-40	5-15	70-85	55-85	55-80	40-60	25-35	5-10
	3-12	Gravelly loam, cobbly loam, very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-15	0-45	75-90	55-90	55-85	40-65	25-35	5-10
	12-26	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	CL, GC, SC	A-2, A-6	0-15	5-45	65-85	35-80	35-75	25-60	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
343:												
Vitale----------	0-3	Very cobbly loam	SC-SM, SM	A-4	5-15	20-35	75-85	55-70	55-60	40-50	25-35	5-10
	3-12	Gravelly loam, cobbly loam, very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-15	0-45	75-90	55-90	55-85	40-65	25-35	5-10
	12-26	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	CL, GC, SC	A-2, A-6	0-15	5-45	65-85	35-80	35-75	25-60	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Very cobbly loam	SC-SM, SM, CL-ML, ML	A-4	5-25	30-50	70-90	55-80	50-70	40-55	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
344:												
Vitale----------	0-3	Gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0-5	70-85	55-75	50-70	35-55	25-35	5-10
	3-12	Gravelly loam, cobbly loam, very cobbly loam	ML, SC-SM, SM, CL-ML	A-4	0-15	0-45	75-90	55-90	55-85	40-65	25-35	5-10
	12-26	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	CL, GC, SC	A-2, A-6	0-15	5-45	65-85	35-80	35-75	25-60	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Merlin----------	0-7	Very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	5-25	30-50	70-90	55-80	50-70	40-55	25-35	5-10
	7-12	Clay loam, gravelly clay loam	CL, ML	A-6, A-7	0	0-5	75-100	65-95	60-90	50-70	35-45	10-20
	12-18	Clay, cobbly clay	CH	A-7	0	0-15	90-100	85-100	80-100	75-95	55-65	30-40
	18-29	Unweathered bedrock			---	---	---	---	---	---	---	---
Doyn----------	0-2	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	15-35	15-30	70-95	60-90	50-80	40-65	25-35	5-10
	2-8	Sandy clay loam, cobbly loam, loam	ML, SM	A-4	0-5	0-20	75-95	70-95	60-85	40-70	30-35	5-10
	8-18	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
345:												
Vitale----------	0-3	Very cobbly loam	SC-SM, SM	A-4	5-15	20-35	75-85	55-70	55-60	40-50	25-35	5-10
	3-12	Gravelly loam, cobbly loam, very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-15	0-45	75-90	55-90	55-85	40-65	25-35	5-10
	12-26	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	CL, GC, SC	A-2, A-6	0-15	5-45	65-85	35-80	35-75	25-60	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Observation-----	0-4	Very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-15	15-20	60-70	35-60	35-55	25-45	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
346:												
Vitale----------	0-3	Very stony loam	CL-ML, ML, SC-SM, SM	A-4	30-40	5-15	70-85	55-85	55-80	40-60	25-35	5-10
	3-12	Gravelly loam, cobbly loam, very cobbly loam	CL-ML, ML, SC-SM, SM	A-4	0-15	0-45	75-90	55-90	55-85	40-65	25-35	5-10
	12-26	Very gravelly clay loam, very cobbly clay loam, very cobbly sandy clay loam	CL, GC, SC	A-2, A-6	0-15	5-45	65-85	35-80	35-75	25-60	30-40	10-15
	26-36	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
347:												
Voltage---------	0-4	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	4-38	Silt loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	70-100	50-90	20-30	NP-10
	38-64	Loam, silt loam, fine sandy loam	ML, SM	A-4	0	0	100	100	70-100	35-90	0-14	NP
348:												
Voltage---------	0-4	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	4-38	Silt loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	70-100	50-90	20-30	NP-10
	38-64	Loam, silt loam, fine sandy loam	ML, SM	A-4	0	0	100	100	70-100	35-90	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
348:												
Crowcamp--------	0-3	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	25-35	5-10
	3-30	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	30-53	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0	80-100	70-100	60-90	45-65	25-35	5-10
	53-68	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0	50-80	35-70	30-60	25-45	25-35	5-10
349:												
Voltage---------	0-4	Silty clay loam	CL	A-6	0	0	100	100	90-100	80-95	30-35	10-15
	4-38	Silt loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	70-100	50-90	20-30	NP-10
	38-64	Silt loam, loam, fine sandy loam	ML, SM	A-4	0	0	100	100	70-100	50-90	0-14	NP
Crowcamp--------	0-3	Silty clay loam	ML	A-6	0	0	100	100	95-100	85-95	35-40	10-15
	3-30	Clay, silty clay	CH, CL	A-7	0	0	100	100	90-100	75-95	45-60	20-35
	30-53	Loam, gravelly loam	CL-ML, ML, SC-SM, SM	A-4	0	0	80-100	70-100	60-90	45-65	25-35	5-10
	53-68	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0	0	50-80	35-70	30-60	25-45	25-35	5-10
350:												
Voltage---------	0-4	Silt loam	CL-ML, ML	A-4	0	0	100	100	90-100	70-90	20-30	NP-10
	4-38	Silt loam, loam, fine sandy loam	CL-ML, ML	A-4	0	0	100	100	70-100	50-90	20-30	NP-10
	38-64	Loam, silt loam, fine sandy loam	ML, SM	A-4	0	0	100	100	70-100	35-90	0-14	NP
Widowspring-----	0-22	Silt loam	CL	A-6	0	0	100	100	95-100	75-90	25-35	10-15
	22-43	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	25-40	10-20
	43-63	Loam, silt loam	CL	A-6	0	0	100	100	85-100	60-90	25-35	10-15
351:												
Wagontire-------	0-5	Gravelly clay loam	CL, GC	A-6	0	0-5	60-80	50-75	40-70	35-60	30-40	10-15
	5-15	Gravelly clay, gravelly clay loam	CL, GC	A-7	0	0-5	60-80	50-75	45-75	40-70	40-50	15-25
	15-40	Indurated			---	---	---	---	---	---	---	---
	40-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0	0-5	45-60	35-50	20-30	10-25	0-14	NP
352:												
Wagontire-------	0-5	Gravelly clay loam	CL, GC	A-6	0	0-5	60-80	50-75	40-70	35-60	30-40	10-15
	5-15	Gravelly clay, gravelly clay loam	CL, GC	A-7	0	0-5	60-80	50-75	45-75	40-70	40-50	15-25
	15-40	Indurated			---	---	---	---	---	---	---	---
	40-60	Very gravelly loam, very gravelly sandy loam	GM	A-1	0	0-5	45-60	35-50	20-30	10-25	0-14	NP

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
352:												
Vil	0-6	Silt loam	CL-ML	A-4	0	0	100	90-100	80-95	65-80	20-30	5-10
	6-9	Loam	CL-ML	A-4	0	0	100	90-100	75-90	55-65	25-30	5-10
	9-13	Clay loam, loam	CL	A-6	0	0	90-100	85-100	70-90	55-80	30-40	10-15
	13-16	Gravelly clay loam, gravelly loam	CL, SC	A-6	0	0-10	80-90	65-75	55-70	45-55	30-40	10-15
	16-37	Indurated	---	---	---	---	---	---	---	---	---	---
	37-60	Very gravelly sandy loam	GM, SM	A-1	0-5	0-20	55-75	35-55	25-40	15-25	20-25	NP-5
353:												
Waspo	0-3	Clay	MH	A-7	0	0	100	100	95-100	75-95	55-75	25-40
	3-25	Clay, silty clay	MH	A-7	0	0	100	100	100	80-100	65-80	30-45
	25-35	Weathered bedrock			---	---	---	---	---	---	---	---
Poall	0-8	Silt loam	CL-ML, ML	A-4	0	0	90-100	80-100	75-95	60-90	25-35	5-10
	8-17	Clay	CL, CH	A-7	0	0	90-100	80-100	75-100	65-95	45-55	20-30
	17-33	Clay loam, gravelly clay loam, gravelly silty clay loam	ML	A-7	0	0	80-100	70-100	65-100	50-80	40-45	10-15
	33-65	Clay loam, gravelly clay loam, silty clay loam	GM, ML, SM	A-6, A-7	0	0	70-100	55-100	50-95	40-75	35-45	10-15
354:												
Water	---	---	---	---	---	---	---	---	---	---	---	---
355:												
Welch	0-9	Silt loam	CL-ML	A-4	0	0	100	100	85-95	60-70	25-30	5-10
	9-60	Stratified sandy loam to silty clay loam	CL	A-6	0	0	100	75-100	65-90	50-70	30-40	10-20
356:												
Welch	0-9	Silt loam	CL-ML	A-4	0	0	100	100	85-95	60-70	25-30	5-10
	9-60	Stratified sandy loam to silty clay loam	CL	A-6	0	0	100	75-100	65-90	50-70	30-40	10-20
357:												
Welch	0-5	Loam	CL-ML	A-4	0	0	95-100	95-100	85-95	60-70	25-30	5-10
	5-60	Stratified sandy loam to silty clay loam	CL	A-6	0	0	80-100	75-100	65-90	50-70	30-40	10-20
Roschene	0-5	Loam	CL-ML, ML	A-4	0	0	100	85-100	75-95	60-75	25-35	5-10
	5-18	Loam	CL-ML, ML	A-4	0	0	100	85-100	75-95	60-75	25-35	5-10
	18-36	Loam, clay loam	CL, ML	A-4, A-6	0	0	100	85-100	75-100	60-80	30-40	5-15
	36-62	Loam, clay loam	CL, ML	A-4, A-6	0	0	100	85-100	75-100	60-80	30-40	5-15
Cumulic Haploxerolls	0-25	Loam	ML	A-4	0	0-5	90-100	85-100	70-95	50-75	25-35	NP-10
	25-60	Variable			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
358:												
Wenas----------	0-10	Clay loam	CL	A-6	0	0	100	90-100	80-100	70-80	30-40	10-15
	10-21	Fine sandy loam	SM	A-2, A-4	0	0	100	90-100	60-75	30-50	20-25	NP-5
	21-34	Loam	CL-ML	A-4	0	0	100	80-90	70-85	55-65	20-30	5-10
	34-53	Loam	CL-ML	A-4	0	0	100	80-90	70-85	55-65	20-30	5-10
	53-63	Gravelly loam	CL-ML, SC-SM	A-4	0	0-10	85-95	65-80	60-70	45-60	20-30	5-10
	63-67	Very gravelly loamy sand	SM, SP-SM	A-1	0-10	5-15	65-85	35-55	20-35	10-15	0-14	NP
Loupence--------	0-2	Silt loam	ML	A-4	0	0	100	100	90-100	85-95	25-35	5-10
	2-24	Silt loam	ML	A-4	0	0	100	100	90-100	85-95	25-35	5-10
	24-49	Silt loam	ML	A-4	0	0	100	100	90-100	85-95	25-35	5-10
	49-60	Sandy loam	SM	A-4	0	0	100	100	70-80	35-45	15-20	NP-5
Cumulic Haploxerolls---	0-25	Loam	ML	A-4	0	0-5	90-100	85-100	70-95	50-75	25-35	NP-10
	25-60	Variable			---	---	---	---	---	---	---	---
359:												
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
360:												
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	ML, SC, SC-SM, SM, CL-ML	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
361:												
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Bocker----------	0-3	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	25-40	10-20	45-70	35-60	35-55	25-40	25-35	5-10
	3-7	Very stony loam, extremely stony loam	GC, GM, SM	A-2, A-4	20-40	5-20	45-80	30-75	30-70	25-45	25-35	5-10
	7-17	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
362:												
Westbutte-------	0-12	Extremely stony loam	GC-GM, GM, SC-SM, SM	A-2, A-4	30-55	15-30	60-75	45-60	40-55	30-40	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Lambring--------	0-7	Very cobbly loam	GM, ML, SM	A-4	0-15	25-45	65-85	50-70	45-65	35-60	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very gravelly loam, very cobbly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
363:												
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
364:												
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
365:												
Westbutte-------	0-12	Very cobbly loam	CL-ML, GC-GM, GM, ML, SM	A-4	0-15	25-45	65-85	50-70	45-65	35-60	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
365:												
Lambring--------	0-7	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
366:												
Westbutte-------	0-12	Very cobbly loam	CL-ML, GC-GM, GM, ML, SM	A-4	0-15	25-45	65-85	50-70	45-65	35-60	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Lambring--------	0-7	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
367:												
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Lambring--------	0-7	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	7-12	Gravelly loam	SC-SM, SM	A-4	0-5	0-15	70-85	65-75	55-65	35-45	25-35	5-10
	12-21	Gravelly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	0-5	5-20	45-80	40-75	35-65	25-45	25-35	5-10
	21-60	Very cobbly loam, very gravelly loam	GC-GM, GM, SC-SM, SM	A-2, A-4	5-20	15-45	50-80	45-75	40-65	30-45	25-35	5-10
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
368:												
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Observation-----	0-4	Very stony loam	ML, SC-SM, SM	A-4	20-30	15-30	70-90	65-75	60-70	40-55	25-35	5-10
	4-8	Cobbly loam	ML	A-4	0-10	15-25	80-95	75-90	70-85	50-65	30-35	5-10
	8-23	Clay loam, clay, cobbly clay loam	CH, CL	A-7	0-10	0-30	80-100	75-100	70-95	50-80	40-60	15-35
	23-33	Unweathered bedrock			---	---	---	---	---	---	---	---
369:												
Westbutte-------	0-12	Very stony loam	GC-GM, GM, SC-SM, SM	A-4	20-45	10-20	60-85	50-75	45-65	35-50	25-35	5-10
	12-24	Very cobbly loam, very cobbly clay loam, very stony clay loam	CL-ML, ML, SC, SC-SM, SM	A-4	5-35	15-45	70-85	60-85	55-80	35-65	25-35	5-10
	24-34	Unweathered bedrock			---	---	---	---	---	---	---	---
Rock outcrop----	0-60	Unweathered bedrock			---	---	---	---	---	---	---	---
Pernty----------	0-3	Gravelly sandy loam	SC-SM	A-1, A-2	0	0-5	75-90	60-70	40-50	20-30	20-25	5-10
	3-8	Cobbly loam, cobbly clay loam	CL, SC	A-6	0	15-35	80-95	65-90	55-90	45-70	25-35	10-15
	8-15	Very cobbly loam, very cobbly clay loam	CL, SC	A-6	0	30-60	75-90	55-90	50-90	40-70	30-40	10-15
	15-25	Unweathered bedrock			---	---	---	---	---	---	---	---
370:												
Widowspring-----	0-22	Silt loam	CL	A-6	0	0	100	100	95-100	75-90	25-35	10-15
	22-43	Silt loam, silty clay loam	CL	A-6	0	0	100	100	95-100	75-95	25-40	10-20
	43-63	Loam, silt loam	CL	A-6	0	0	100	100	85-100	60-90	25-35	10-15
371:												
Windybutte------	0-7	Silt loam	CL-ML	A-4	0	0	100	100	95-100	75-90	25-30	5-10
	7-13	Silty clay loam, silt loam	CL	A-6	0	0	100	100	95-100	75-95	30-40	15-20
	13-17	Loam, sandy loam	CL-ML, ML, SC-SM, SM	A-4	0	0	100	100	70-95	40-75	20-30	NP-10
	17-60	Loam	ML	A-4	0	0	100	100	85-95	60-75	20-25	NP-5

Table 14.--Engineering Index Properties--Continued

Map symbol and soil name	Depth	USDA texture	Classification		Fragments		Percentage passing sieve number--				Liquid limit	Plasticity index
			Unified	AASHTO	>10 inches	3-10 inches	4	10	40	200		
	In				*Pct*	*Pct*					*Pct*	
372:												
Wolverine-------	0-6	Fine sand	SM	A-2	0	0	100	100	65-80	20-25	0-14	NP
	6-37	Sand, loamy fine sand	SM, SP-SM	A-3, A-2	0	0	100	85-100	60-80	5-25	0-14	NP
	37-51	Sand, fine sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	85-100	60-80	5-25	0-14	NP
	51-70	Sand, fine sand, loamy fine sand	SM, SP-SM	A-2, A-3	0	0	100	85-100	60-80	5-25	0-14	NP
373:												
Denied access---	---	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils

(Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Wind erodibility index" apply only to the surface layer. Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
1:												
Actem	0-2	20-27	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	2-7	35-45	1.40-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-1.0	.24	.32			
	7-15	35-45	1.40-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-1.0	.24	.32			
	15-20	---	---	---	---	---	---	---	---			
	20-30	---	---	---	---	---	---	---	---			
2:												
Actem	0-2	20-27	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	1.0-2.0	.10	.28	1	8	0
	2-7	35-45	1.40-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-1.0	.24	.32			
	7-15	35-45	1.40-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-1.0	.24	.32			
	15-20	---	---	---	---	---	---	---	---			
	20-30	---	---	---	---	---	---	---	---			
3:												
Actem	0-2	20-27	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	2-7	35-45	1.40-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-1.0	.24	.32			
	7-15	35-45	1.40-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-1.0	.24	.32			
	15-20	---	---	---	---	---	---	---	---			
	20-30	---	---	---	---	---	---	---	---			
Robson	0-4	20-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	4-13	40-50	1.40-1.50	0.06-0.2	0.05-0.08	6.0-8.9	0.5-1.0	.10	.32			
	13-23	---	---	---	---	---	---	---	---			
4:												
Alvodest	0-6	30-40	1.35-1.40	0.2-0.6	0.03-0.07	3.0-5.9	0.5-1.0	.37	.37	5	4L	86
	6-42	35-60	1.30-1.45	0.06-0.2	0.03-0.07	6.0-8.9	0.0-0.5	.28	.28			
	42-78	25-50	1.30-1.45	0.06-0.2	0.03-0.07	6.0-8.9	0.0-0.5	.32	.32			
5:												
Alvodest	0-6	30-40	1.35-1.40	0.2-0.6	0.03-0.07	3.0-5.9	0.5-1.0	.37	.37	5	4L	86
	6-42	35-60	1.30-1.45	0.06-0.2	0.03-0.07	6.0-8.9	0.0-0.5	.28	.28			
	42-78	25-50	1.30-1.45	0.06-0.2	0.03-0.07	6.0-8.9	0.0-0.5	.32	.32			
Playas	0-60	35-70	1.10-1.50	0.0015-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	5	4L	86
6:												
Alyan	0-2	15-20	1.45-1.60	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.17	.24	2	4	86
	2-10	20-25	1.45-1.60	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28			
	10-17	27-40	1.30-1.50	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.24	.28			
	17-24	40-50	1.30-1.50	0.06-0.2	0.10-0.16	6.0-8.9	0.5-1.0	.17	.28			
	24-34	---	---	---	---	---	---	---	---			
7:												
Anatone	0-5	18-27	1.30-1.50	0.6-2	0.06-0.08	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	5-16	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	16-26	---	---	---	---	---	---	---	---			
8:												
Anatone, moist	0-5	18-27	1.30-1.50	0.6-2	0.06-0.08	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	5-16	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	16-26	---	---	---	---	---	---	---	---			
Anatone	0-8	18-27	1.30-1.50	0.6-2	0.11-0.13	0.0-2.9	2.0-4.0	.17	.28	1	7	38
	8-14	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-2.0	.15	.28			
	14-24	---	---	---	---	---	---	---	---			
9:												
Anatone	0-5	18-27	1.30-1.50	0.6-2	0.06-0.08	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	5-16	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	16-26	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
9:												
Teguro	0-2	18-27	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	2.0-4.0	.24	.28	1	7	38
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
Observation	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
10:												
Anatone, moist	0-8	18-27	1.30-1.50	0.6-2	0.04-0.06	0.0-2.9	2.0-4.0	.05	.28	1	8	0
	8-14	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	14-24	---	---	---	---	---	---	---	---			
Egyptcreek	0-8	18-25	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.24	2	8	0
	8-18	20-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28			
	18-24	20-27	1.35-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
11:												
Anatone, moist	0-5	18-27	1.30-1.50	0.6-2	0.04-0.06	0.0-2.9	2.0-4.0	.05	.28	1	8	0
	5-16	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	16-26	---	---	---	---	---	---	---	---			
Minam	0-3	15-25	1.20-1.30	0.6-2	0.13-0.16	0.0-2.9	3.0-7.0	.20	.24	5	7	38
	3-29	18-27	1.25-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-5.0	.24	.28			
	29-39	18-27	1.25-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.32	.32			
	39-52	20-30	1.35-1.50	0.6-2	0.13-0.16	0.0-2.9	0.5-1.0	.24	.28			
	52-62	15-20	1.35-1.50	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.24	.28			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
12:												
Anatone	0-5	18-27	1.30-1.50	0.6-2	0.06-0.08	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	5-16	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	16-26	---	---	---	---	---	---	---	---			
Teguro	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
13:												
Anatone	0-5	18-27	1.30-1.50	0.6-2	0.04-0.06	0.0-2.9	2.0-4.0	.05	.28	1	8	0
	5-16	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-3.0	.15	.28			
	16-26	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
14:												
Anawalt	0-2	27-30	1.30-1.50	0.6-2	0.15-0.18	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	2-11	20-35	1.30-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.37	.37			
	11-16	40-60	1.30-1.50	0.06-0.2	0.10-0.16	6.0-8.9	0.0-0.5	.24	.32			
	16-26	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
15:												
Anawalt	0-2	27-30	1.30-1.50	0.6-2	0.15-0.18	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	2-11	20-35	1.30-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.37	.37			
	11-16	40-60	1.30-1.50	0.06-0.2	0.10-0.16	6.0-8.9	0.0-0.5	.24	.32			
	16-26	---	---	---	---	---	---	---	---			
Lonely	0-4	27-35	1.20-1.30	0.2-0.6	0.13-0.18	3.0-5.9	1.0-2.0	.17	.32	2	8	0
	4-16	27-35	1.20-1.30	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.24	.37			
	16-24	27-35	1.20-1.30	0.2-0.6	0.14-0.18	3.0-5.9	0.0-0.5	.20	.37			
	24-34	---	---	---	---	---	---	---	---			
16:												
Anawalt	0-2	27-30	1.30-1.50	0.6-2	0.15-0.18	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	2-11	20-35	1.30-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.37	.37			
	11-16	40-60	1.30-1.50	0.06-0.2	0.10-0.16	6.0-8.9	0.0-0.5	.24	.32			
	16-26	---	---	---	---	---	---	---	---			
Oreneva	0-2	18-27	1.20-1.30	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.24	.28	2	7	38
	2-10	18-30	1.30-1.40	0.2-0.6	0.15-0.19	0.0-2.9	0.5-2.0	.28	.28			
	10-21	18-30	1.30-1.40	0.2-2	0.08-0.13	0.0-2.9	0.5-1.0	.10	.28			
	21-31	---	---	---	---	---	---	---	---			
17:												
Anawalt	0-2	27-30	1.30-1.50	0.6-2	0.15-0.18	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	2-11	20-35	1.30-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.37	.37			
	11-16	40-60	1.30-1.50	0.06-0.2	0.10-0.16	6.0-8.9	0.0-0.5	.24	.32			
	16-26	---	---	---	---	---	---	---	---			
Raz	0-2	20-27	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	2-7	20-35	1.20-1.30	0.2-0.6	0.15-0.19	3.0-5.9	0.5-1.0	.24	.32			
	7-12	20-35	1.20-1.30	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.32	.32			
	12-23	---	---	---	0.00-0.00	---	---	---	---			
	23-33	---	---	---	---	---	---	---	---			
18:												
Ateron	0-5	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.28	1	7	38
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
19:												
Ateron	0-5	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
20:												
Ateron	0-5	20-27	1.20-1.30	0.6-2	0.05-0.08	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
Observation	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
21:												
Atlow	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
22:												
Atlow	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
23:												
Atlow	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
24:												
Atlow	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			
Skedaddle	0-3	27-30	1.35-1.55	0.6-2	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32	1	8	0
	3-8	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	8-11	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	11-21	---	---	---	---	---	---	---	---			
25:												
Ausmus	0-2	10-20	1.00-1.20	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	2-9	27-35	1.20-1.30	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.43	.43			
	9-16	27-35	1.20-1.30	0.2-0.6	0.07-0.10	3.0-5.9	0.3-0.7	.43	.43			
	16-29	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.37	.37			
	29-69	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.32	.32			
26:												
Ausmus	0-2	10-20	1.00-1.20	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	2-9	27-35	1.20-1.30	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.43	.43			
	9-16	27-35	1.20-1.30	0.2-0.6	0.07-0.10	3.0-5.9	0.3-0.7	.43	.43			
	16-29	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.37	.37			
	29-69	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.32	.32			
27:												
Baconcamp	0-4	27-30	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	2	7	38
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
28:												
Baconcamp	0-4	27-30	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Clamp	0-3	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	2.0-4.0	.10	.24	1	8	0
	3-12	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-3.0	.10	.28			
	12-22	---	---	---	---	---	---	---	---			
29:												
Baconcamp	0-4	27-30	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Clamp	0-3	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	2.0-4.0	.10	.24	1	8	0
	3-12	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-3.0	.10	.28			
	12-22	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
30:												
Baconcamp	0-4	27-30	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	2	7	38
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Clamp	0-3	27-35	1.20-1.30	0.2-0.6	0.07-0.11	3.0-5.9	2.0-4.0	.05	.24	1	8	0
	3-12	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-3.0	.10	.28			
	12-22	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
31:												
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	2	7	38
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
32:												
Baconcamp	0-4	27-30	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
33:												
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Hackwood	0-11	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	5	7	38
	11-23	18-27	1.30-1.40	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	23-48	18-30	1.40-1.50	0.6-2	0.07-0.11	0.0-2.9	0.5-1.0	.17	.28			
	48-60	18-30	1.40-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.15	.28			
34:												
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Hapgood	0-10	15-20	1.20-1.30	2-6	0.09-0.11	0.0-2.9	3.0-8.0	.17	.20	3	4	86
	10-23	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-4.0	.15	.24			
	23-43	18-30	1.40-1.50	2-6	0.07-0.13	0.0-2.9	1.0-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
35:												
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	2	7	38
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Krackle	0-4	27-35	1.20-1.30	0.2-0.6	0.14-0.17	3.0-5.9	1.0-3.0	.20	.28	2	8	0
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
36:												
Berdugo	0-1	20-25	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	1-12	35-45	1.30-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-2.0	.24	.24			
	12-17	20-27	1.25-1.35	0.2-0.6	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32			
	17-26	10-30	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.28	.28			
	26-65	5-15	1.20-1.40	6-20	0.02-0.14	0.0-2.9	0.0-0.5	.10	.17			
37:												
Berdugo	0-1	20-25	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	1-12	35-45	1.30-1.40	0.06-0.2	0.13-0.17	3.0-5.9	1.0-2.0	.24	.24			
	12-17	20-27	1.25-1.35	0.2-0.6	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32			
	17-26	10-30	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	0.0-0.5	.28	.28			
	26-65	5-15	1.20-1.40	6-20	0.02-0.14	0.0-2.9	0.0-0.5	.10	.17			
Catlow	0-3	15-20	1.20-1.30	0.6-2	0.06-0.09	0.0-2.9	1.0-2.0	.20	.28	5	4	86
	3-22	15-25	1.20-1.30	0.6-2	0.05-0.09	0.0-2.9	0.5-1.0	.17	.28			
	22-31	5-15	1.40-1.55	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17			
	31-60	0-10	1.30-1.40	6-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.10			
38:												
Bigfrog	0-3	20-30	1.30-1.50	0.2-0.6	0.11-0.14	3.0-5.9	1.0-2.0	.17	.28	1	7	38
	3-18	25-35	1.30-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.5-1.0	.20	.28			
	18-38	---	---	---	---	---	---	---	---			
	38-60	5-25	1.20-1.40	2-20	0.00-0.00	0.0-2.9	0.0-0.5	.10	.24			
Brock	0-3	10-20	1.30-1.50	2-6	0.05-0.08	0.0-2.9	1.0-2.0	.15	.28	1	5	56
	3-7	20-30	1.30-1.50	0.2-0.6	0.05-0.10	3.0-5.9	0.5-1.0	.15	.28			
	7-10	15-20	1.30-1.50	2-6	0.05-0.08	0.0-2.9	0.0-0.5	.10	.32			
	10-16	---	---	---	---	---	---	---	---			
	16-60	5-15	1.20-1.40	2-20	0.00-0.00	0.0-2.9	0.0-0.5	.10	.24			
39:												
Bocker	0-3	18-27	1.30-1.50	0.6-2	0.04-0.07	0.0-2.9	2.0-4.0	.05	.24	1	8	0
	3-7	20-27	1.30-1.50	0.6-2	0.04-0.07	0.0-2.9	1.0-2.0	.10	.28			
	7-17	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
40:												
Boravall	0-9	27-40	1.35-1.40	0.2-0.6	0.01-0.02	3.0-5.9	0.0-0.5	.43	.43	5	4L	86
	9-43	35-50	1.30-1.35	0.06-0.2	0.07-0.10	6.0-8.9	0.0-0.5	.32	.32			
	43-60	20-40	1.35-1.40	0.2-0.6	0.13-0.16	3.0-5.9	0.0-0.5	.43	.43			
Playas	0-60	35-70	1.10-1.50	0.0015-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	5	4L	86
41:												
Borobey	0-3	10-15	1.00-1.20	2-6	0.12-0.15	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	3-11	10-15	1.00-1.20	2-6	0.15-0.17	0.0-2.9	1.0-2.0	.28	.32			
	11-23	10-15	1.20-1.40	0.2-0.6	0.10-0.14	0.0-2.9	0.5-1.0	.28	.28			
	23-27	5-10	1.20-1.40	0.2-0.6	0.07-0.10	0.0-2.9	0.0-0.5	.17	.24			
	27-60	5-10	1.20-1.40	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.17	.24			
42:												
Boulder Lake	0-1	40-60	1.20-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	1.0-3.0	.20	.20	5	4	86
	1-42	40-60	1.20-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	0.5-2.0	.20	.20			
	42-62	35-40	1.30-1.40	0.06-0.2	0.17-0.19	3.0-5.9	0.0-0.5	.32	.32			
43:												
Boulder Lake	0-1	30-40	1.20-1.40	0.06-0.2	0.14-0.17	3.0-5.9	1.0-3.0	.24	.24	5	4	86
	1-42	40-60	1.20-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	0.5-2.0	.20	.20			
	42-62	35-40	1.30-1.40	0.06-0.2	0.17-0.19	3.0-5.9	0.0-0.5	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
43:												
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
44:												
Boulder Lake	0-1	40-60	1.20-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	1.0-3.0	.20	.20	5	4	86
	1-42	40-60	1.20-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	0.5-2.0	.20	.20			
	42-62	35-40	1.30-1.40	0.06-0.2	0.17-0.19	3.0-5.9	0.0-0.5	.32	.32			
Spangenburg	0-2	20-27	1.20-1.35	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	2-15	45-60	1.30-1.45	0.06-0.2	0.15-0.21	6.0-8.9	1.0-2.0	.24	.24			
	15-34	25-40	1.15-1.25	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-60	15-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
45:												
Brabble	0-3	20-30	1.30-1.50	0.2-0.6	0.14-0.17	3.0-5.9	1.0-2.0	.17	.24	2	6	48
	3-9	20-30	1.30-1.50	0.2-0.6	0.15-0.18	3.0-5.9	0.5-1.0	.24	.24			
	9-26	20-35	1.30-1.50	0.2-0.6	0.14-0.18	3.0-5.9	0.0-0.5	.28	.32			
	26-33	20-27	1.30-1.50	0.6-2	0.14-0.16	3.0-5.9	0.0-0.5	.37	.37			
	33-38	---	---	---	---	---	---	---	---			
	38-48	---	---	---	---	---	---	---	---			
Calderwood	0-3	20-27	1.20-1.30	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.20	.32	1	8	0
	3-12	20-35	1.35-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.5-2.0	.10	.37			
	12-18	20-35	1.35-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.0-0.5	.10	.37			
	18-28	---	---	---	---	---	---	---	---			
46:												
Brace	0-6	15-27	1.35-1.45	0.6-2	0.07-0.12	0.0-2.9	0.5-1.0	.10	.28	2	8	0
	6-13	20-35	1.30-1.70	0.2-2	0.12-0.21	3.0-5.9	0.0-0.5	.28	.28			
	13-32	15-25	1.35-1.60	0.6-6	0.09-0.17	0.0-2.9	0.0-0.5	.28	.28			
	32-36	---	---	---	---	---	---	---	---			
	36-46	---	---	---	---	---	---	---	---			
Coztur	0-9	18-27	1.40-1.50	0.6-2	0.08-0.11	0.0-2.9	0.7-1.0	.17	.32	1	8	0
	9-18	20-35	1.30-1.50	0.2-0.6	0.10-0.17	3.0-5.9	0.0-0.7	.24	.28			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
47:												
Brace	0-6	10-20	1.30-1.50	2-6	0.09-0.13	0.0-2.9	0.5-1.0	.20	.32	2	4	86
	6-13	20-35	1.30-1.70	0.2-2	0.12-0.21	3.0-5.9	0.0-0.5	.28	.28			
	13-32	15-25	1.35-1.60	0.6-6	0.09-0.17	0.0-2.9	0.0-0.5	.28	.28			
	32-36	---	---	---	---	---	---	---	---			
	36-46	---	---	---	---	---	---	---	---			
Vergas	0-6	20-27	1.35-1.45	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	6-14	20-35	1.40-1.50	0.2-0.6	0.11-0.16	3.0-5.9	0.0-0.5	.24	.32			
	14-20	5-10	1.45-1.60	0.06-0.2	0.04-0.07	0.0-2.9	0.0-0.5	.05	.17			
	20-62	2-10	1.45-1.60	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.02	.15			
48:												
Bruncan, thick surface	0-5	10-20	1.30-1.50	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.20	.32	1	4	86
	5-15	20-30	1.35-1.60	0.2-0.6	0.09-0.17	3.0-5.9	0.0-0.5	.20	.32			
	15-17	---	---	---	---	---	---	---	---			
	17-27	---	---	---	---	---	---	---	---			
Bruncan, thin surface	0-1	10-20	1.30-1.50	2-6	0.09-0.12	0.0-2.9	0.5-1.0	.20	.32	1	4	86
	1-15	20-30	1.35-1.60	0.2-0.6	0.09-0.17	3.0-5.9	0.0-0.5	.20	.32			
	15-17	---	---	---	---	---	---	---	---			
	17-27	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
49:												
Brunzell	0-11	18-27	1.20-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-4.0	.20	.28	3	7	38
	11-18	20-30	1.40-1.50	0.2-0.6	0.08-0.14	0.0-2.9	0.5-1.0	.17	.28			
	18-30	20-30	1.40-1.50	0.2-0.6	0.08-0.11	0.0-2.9	0.5-1.0	.17	.32			
	30-62	5-18	1.45-1.60	6-20	0.02-0.06	0.0-2.9	0.0-0.5	.05	.17			
50:												
Bucklake	0-2	27-30	1.30-1.55	0.2-0.6	0.09-0.12	0.0-2.9	1.0-3.0	.15	.28	2	8	0
	2-16	40-50	1.35-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-2.0	.24	.28			
	16-31	35-40	1.25-1.55	0.2-0.6	0.13-0.16	3.0-5.9	0.5-1.0	.20	.28			
	31-41	---	---	---	---	---	---	---	---			
51:												
Bucklake	0-2	20-27	1.40-1.55	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.17	.32	2	8	0
	2-16	40-50	1.35-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-2.0	.24	.28			
	16-31	35-40	1.25-1.55	0.2-0.6	0.13-0.16	3.0-5.9	0.5-1.0	.20	.28			
	31-41	---	---	---	---	---	---	---	---			
Mahoon	0-3	18-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
52:												
Calderwood	0-3	20-27	1.20-1.30	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.20	.32	1	8	0
	3-12	20-35	1.35-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.5-2.0	.10	.37			
	12-18	20-35	1.35-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.0-0.5	.10	.37			
	18-28	---	---	---	---	---	---	---	---			
53:												
Calderwood	0-3	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.32	1	7	38
	3-12	20-35	1.35-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.5-2.0	.10	.37			
	12-18	20-35	1.35-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.0-0.5	.10	.37			
	18-28	---	---	---	---	---	---	---	---			
McConnel	0-3	5-15	1.40-1.60	2-6	0.04-0.07	0.0-2.9	0.8-1.0	.10	.24	5	5	56
	3-11	5-15	1.40-1.60	2-6	0.07-0.11	0.0-2.9	0.5-1.0	.17	.24			
	11-62	2-5	1.50-1.60	20-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.17			
54:												
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.16-0.19	3.0-5.9	1.0-2.0	.28	.28	2	7	38
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.24	.24			
	24-34	---	---	---	---	---	---	---	---			
55:												
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.20	.28	2	7	38
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
56:												
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.07-0.10	3.0-5.9	1.0-2.0	.10	.28	2	8	0
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
57:												
Carryback	0-7	20-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	2	8	0
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
58:												
Carryback, thin surface	0-7	27-35	1.30-1.50	0.6-2	0.16-0.19	3.0-5.9	1.0-2.0	.28	.28	2	7	38
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
58:												
Carryback, thick surface	0-10	20-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	2	8	0
	10-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
59:												
Carryback, thin surface	0-7	27-35	1.30-1.50	0.6-2	0.16-0.19	3.0-5.9	1.0-2.0	.28	.28	2	7	38
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.24	.24			
	24-34	---	---	---	---	---	---	---	---			
Carryback, south slopes	0-10	27-35	1.30-1.50	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.20	.28	2	7	38
	10-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
Carryback, north slopes	0-10	27-35	1.30-1.50	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.20	.28	2	7	38
	10-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
60:												
Carryback, south slopes	0-10	20-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	2	8	0
	10-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
Carryback, north slopes	0-10	20-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	2	8	0
	10-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
61:												
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.05-0.08	3.0-5.9	1.0-2.0	.05	.28	2	8	0
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
Pearlwise	0-6	27-35	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	2	6	48
	6-22	20-35	1.25-1.45	0.6-2	0.13-0.18	0.0-2.9	1.0-3.0	.28	.28			
	22-32	---	---	---	---	---	---	---	---			
62:												
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.05-0.08	3.0-5.9	1.0-2.0	.05	.28	2	8	0
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
Pearlwise	0-6	27-35	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	2	6	48
	6-22	20-35	1.25-1.45	0.6-2	0.13-0.18	0.0-2.9	1.0-3.0	.28	.28			
	22-32	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
63:												
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.07-0.10	3.0-5.9	1.0-2.0	.10	.28	2	8	0
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
Dickle	0-3	27-35	1.20-1.40	0.2-0.6	0.10-0.13	3.0-5.9	2.0-5.0	.15	.24	1	8	0
	3-14	27-35	1.30-1.50	0.2-0.6	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	14-24	---	---	---	---	---	---	---	---			
64:												
Carvix	0-6	15-27	1.20-1.30	0.6-2	0.16-0.19	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-19	15-27	1.20-1.30	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.32	.32			
	19-60	18-30	1.25-1.35	0.6-2	0.14-0.18	0.0-2.9	0.2-1.0	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
65:												
Clamp	0-3	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	2.0-4.0	.10	.24	1	8	0
	3-12	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-3.0	.10	.28			
	12-22	---	---	---	---	---	---	---	---			
Baconcamp	0-4	27-30	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Hackwood	0-11	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	5	7	38
	11-23	18-27	1.30-1.40	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	23-48	18-30	1.40-1.50	0.6-2	0.07-0.11	0.0-2.9	0.5-1.0	.17	.28			
	48-60	18-30	1.40-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.15	.28			
66:												
Coztur	0-9	12-20	1.40-1.60	2-6	0.09-0.12	0.0-2.9	0.7-1.0	.24	.24	1	3	86
	9-18	20-35	1.30-1.50	0.2-0.6	0.10-0.17	3.0-5.9	0.0-0.7	.24	.28			
	18-28	---	---	---	---	---	---	---	---			
67:												
Crowcamp	0-3	15-27	1.25-1.35	0.6-2	0.14-0.17	0.0-2.9	4.0-6.0	.32	.32	5	5	56
	3-30	40-55	1.40-1.55	0.06-0.2	0.12-0.16	6.0-8.9	0.5-4.0	.24	.24			
	30-53	18-27	1.40-1.60	0.2-0.6	0.13-0.17	0.0-2.9	0.0-0.5	.24	.28			
	53-68	18-27	1.30-1.45	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28			
68:												
Crowcamp	0-3	27-30	1.25-1.35	0.2-0.6	0.15-0.18	3.0-5.9	4.0-6.0	.28	.28	5	7	38
	3-30	40-55	1.40-1.55	0.06-0.2	0.12-0.16	6.0-8.9	0.5-4.0	.24	.24			
	30-53	18-27	1.40-1.60	0.2-0.6	0.13-0.17	0.0-2.9	0.0-0.5	.24	.28			
	53-68	18-27	1.30-1.45	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28			
Ausmus	0-2	10-20	1.00-1.20	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	2-9	27-35	1.20-1.30	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.43	.43			
	9-16	27-35	1.20-1.30	0.2-0.6	0.07-0.10	3.0-5.9	0.3-0.7	.43	.43			
	16-29	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.37	.37			
	29-69	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.32	.32			
Poujade	0-4	10-18	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.43	.43	5	3	86
	4-6	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37			
	6-13	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.32	.32			
	13-40	20-30	1.40-1.50	0.2-0.6	0.06-0.09	3.0-5.9	0.0-0.5	.43	.43			
	40-65	10-30	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.49	.49			
69:												
Davey	0-3	5-15	1.40-1.50	2-6	0.08-0.11	0.0-2.9	0.5-1.0	.24	.24	5	3	86
	3-18	5-15	1.35-1.45	2-6	0.08-0.11	0.0-2.9	0.0-0.7	.28	.28			
	18-60	5-10	1.40-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.17	.20			
70:												
Davey	0-3	5-15	1.40-1.50	2-6	0.05-0.08	0.0-2.9	0.5-1.0	.20	.24	5	4	86
	3-18	5-15	1.35-1.45	2-6	0.08-0.11	0.0-2.9	0.0-0.7	.28	.28			
	18-60	5-10	1.40-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.17	.20			
Oreanna	0-7	20-30	1.35-1.40	0.6-2	0.12-0.14	3.0-5.9	1.0-2.0	.20	.28	3	6	48
	7-21	20-30	1.35-1.40	0.6-2	0.12-0.20	3.0-5.9	0.5-1.0	.28	.32			
	21-43	0-10	1.50-1.55	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.05	.15			
	43-50	5-15	1.45-1.50	2-6	0.07-0.09	0.0-2.9	0.0-0.5	.15	.24			
	50-60	0-10	1.50-1.55	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.20	.20			
71:												
Defenbaugh	0-5	20-27	1.30-1.45	0.6-2	0.08-0.10	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	5-29	20-35	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.32	.32			
	29-60	15-25	1.40-1.50	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
72:												
Deppy	0-6	20-27	1.40-1.45	0.6-2	0.09-0.13	0.0-2.9	0.3-0.5	.15	.28	1	8	0
	6-15	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.1-0.4	.32	.32			
	15-21	---	---	---	0.00-0.00	---	---	---	---			
	21-60	5-15	1.45-1.50	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.10	.28			
73:												
Deppy	0-6	20-27	1.40-1.45	0.6-2	0.09-0.12	0.0-2.9	0.3-0.5	.15	.28	1	8	0
	6-15	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.1-0.4	.32	.32			
	15-21	---	---	---	0.00-0.00	---	---	---	---			
	21-60	5-15	1.45-1.50	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.10	.28			
Tumtum	0-2	20-27	1.40-1.45	0.6-2	0.13-0.15	0.0-2.9	0.3-0.5	.24	.32	1	7	38
	2-12	27-35	1.30-1.40	0.06-0.2	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	12-25	---	---	---	0.00-0.00	---	---	---	---			
	25-60	5-15	1.45-1.50	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.15	.28			
74:												
Dickle	0-3	27-35	1.20-1.40	0.2-0.6	0.10-0.13	3.0-5.9	2.0-5.0	.15	.24	1	8	0
	3-14	27-35	1.30-1.50	0.2-0.6	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	14-24	---	---	---	---	---	---	---	---			
75:												
Dixon	0-2	15-20	1.30-1.40	2-6	0.09-0.12	0.0-2.9	1.0-2.0	.20	.32	3	4	86
	2-35	20-35	1.35-1.40	0.2-2	0.12-0.19	3.0-5.9	0.5-1.0	.28	.43			
	35-46	0-10	1.50-1.55	6-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
	46-60	5-15	1.45-1.55	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.10	.37			
76:												
Dixon	0-2	15-20	1.30-1.40	2-6	0.09-0.12	0.0-2.9	1.0-2.0	.20	.32	3	4	86
	2-35	20-35	1.35-1.40	0.2-2	0.12-0.19	3.0-5.9	0.5-1.0	.28	.43			
	35-46	0-10	1.50-1.55	6-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
	46-60	5-15	1.45-1.55	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.10	.37			
77:												
Dixon	0-2	20-35	1.35-1.40	0.6-2	0.12-0.13	3.0-5.9	1.0-2.0	.20	.37	3	6	48
	2-35	20-35	1.35-1.40	0.2-2	0.12-0.19	3.0-5.9	0.5-1.0	.28	.43			
	35-46	0-10	1.50-1.55	6-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
	46-60	5-15	1.45-1.55	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.10	.37			
78:												
Dixon	0-2	20-35	1.35-1.40	0.6-2	0.12-0.13	3.0-5.9	1.0-2.0	.20	.37	3	6	48
	2-35	20-35	1.35-1.40	0.2-2	0.12-0.19	3.0-5.9	0.5-1.0	.28	.43			
	35-46	0-10	1.50-1.55	6-20	0.05-0.06	0.0-2.9	0.0-0.5	.05	.20			
	46-60	5-15	1.45-1.55	6-20	0.05-0.09	0.0-2.9	0.0-0.5	.10	.37			
Droval	0-4	15-25	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	4-22	40-50	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.1-0.5	.24	.24			
	22-32	50-60	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.0-0.5	.28	.28			
	32-61	40-55	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.0-0.5	.28	.28			
79:												
Dogmountain	0-3	10-18	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.28	2	6	48
	3-9	10-18	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.24	.28			
	9-12	10-18	1.30-1.35	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.32			
	12-21	10-18	1.30-1.35	0.6-2	0.04-0.06	0.0-2.9	0.0-0.5	.10	.32			
	21-30	---	---	---	0.00-0.00	---	---	---	---			
	30-60	0-0	1.55-1.60	20-20	0.00-0.00	0.0-2.9	0.0-0.5	.02	.05			
80:												
Doyn	0-2	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	2-8	20-30	1.30-1.40	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.32			
	8-18	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
81:												
Doyn	0-2	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	2-8	20-30	1.30-1.40	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.32			
	8-18	---	---	---	---	---	---	---	---			
Merlin	0-7	27-30	1.20-1.30	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
82:												
Doyn	0-2	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	2-8	20-30	1.30-1.40	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.32			
	8-18	---	---	---	---	---	---	---	---			
Arcia	0-4	20-27	1.30-1.55	0.6-2	0.02-0.07	0.0-2.9	2.0-4.0	.05	.24	2	8	0
	4-13	20-30	1.30-1.55	0.6-2	0.10-0.15	0.0-2.9	2.0-4.0	.15	.24			
	13-23	35-50	1.25-1.55	0.06-0.2	0.15-0.20	6.0-8.9	1.0-2.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
83:												
Drewsey	0-3	10-18	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	3-32	10-18	1.40-1.50	0.6-2	0.14-0.18	0.0-2.9	0.5-0.8	.37	.37			
	32-62	10-18	1.40-1.50	0.6-2	0.11-0.16	0.0-2.9	0.0-0.5	.37	.37			
84:												
Drewsey	0-3	10-18	1.30-1.50	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.43	.43	5	3	86
	3-32	10-18	1.40-1.50	0.6-2	0.14-0.18	0.0-2.9	0.5-0.8	.37	.37			
	32-62	10-18	1.40-1.50	0.6-2	0.11-0.16	0.0-2.9	0.0-0.5	.37	.37			
85:												
Drewsey	0-3	10-18	1.30-1.50	0.6-2	0.09-0.12	0.0-2.9	0.5-1.0	.20	.32	5	5	56
	3-32	10-18	1.40-1.50	0.6-2	0.14-0.18	0.0-2.9	0.5-0.8	.37	.37			
	32-62	10-18	1.40-1.50	0.6-2	0.11-0.16	0.0-2.9	0.0-0.5	.37	.37			
Torriorthents	0-7	---	---	---	---	---	---	---	---	2	---	---
	7-17	---	---	---	---	---	---	---	---			
Gumble	0-3	18-27	1.35-1.45	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.17	.32	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
86:												
Droval	0-4	15-25	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	4-22	40-50	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.1-0.5	.24	.24			
	22-32	50-60	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.0-0.5	.28	.28			
	32-61	40-55	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.0-0.5	.28	.28			
87:												
Duff	0-8	18-27	1.20-1.40	0.6-2	0.14-0.17	0.0-2.9	3.0-8.0	.20	.20	3	6	48
	8-24	18-27	1.30-1.40	0.6-2	0.10-0.17	0.0-2.9	2.0-4.0	.20	.24			
	24-43	18-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	0.5-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
88:												
Duff	0-8	18-27	1.20-1.40	0.6-2	0.14-0.17	0.0-2.9	3.0-8.0	.20	.20	3	6	48
	8-24	18-27	1.30-1.40	0.6-2	0.10-0.17	0.0-2.9	2.0-4.0	.20	.24			
	24-43	18-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	0.5-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
Clamp	0-3	27-35	1.20-1.30	0.2-0.6	0.14-0.17	3.0-5.9	2.0-4.0	.17	.24	1	7	38
	3-12	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-3.0	.10	.28			
	12-22	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
89:												
Duff	0-8	18-27	1.20-1.40	0.6-2	0.14-0.17	0.0-2.9	3.0-8.0	.20	.20	3	6	48
	8-24	18-27	1.30-1.40	0.6-2	0.10-0.17	0.0-2.9	2.0-4.0	.20	.24			
	24-43	18-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	0.5-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
Clamp	0-3	27-35	1.20-1.30	0.2-0.6	0.14-0.17	3.0-5.9	2.0-4.0	.17	.24	1	7	38
	3-12	27-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-3.0	.10	.28			
	12-22	---	---	---	---	---	---	---	---			
90:												
Duff	0-8	18-27	1.20-1.40	0.6-2	0.14-0.17	0.0-2.9	3.0-8.0	.20	.20	3	6	48
	8-24	18-27	1.30-1.40	0.6-2	0.10-0.17	0.0-2.9	2.0-4.0	.20	.24			
	24-43	18-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	0.5-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
Hackwood	0-11	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	5	8	0
	11-23	18-27	1.30-1.40	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	23-48	18-30	1.40-1.50	0.6-2	0.07-0.11	0.0-2.9	0.5-1.0	.17	.28			
	48-60	18-30	1.40-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.15	.28			
91:												
Edemaps	0-7	20-27	1.30-1.50	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28	2	6	48
	7-18	35-45	1.40-1.50	0.06-0.2	0.12-0.15	6.0-8.9	0.5-2.0	.28	.32			
	18-25	35-40	1.35-1.45	0.2-0.6	0.10-0.16	3.0-5.9	0.5-1.0	.24	.32			
	25-30	---	---	---	---	---	---	---	---			
	30-40	---	---	---	---	---	---	---	---			
92:												
Edemaps	0-7	27-35	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	1.0-2.0	.20	.28	2	7	38
	7-18	35-45	1.40-1.50	0.06-0.2	0.12-0.15	6.0-8.9	0.5-2.0	.28	.32			
	18-25	35-40	1.35-1.45	0.2-0.6	0.10-0.16	3.0-5.9	0.5-1.0	.24	.32			
	25-30	---	---	---	---	---	---	---	---			
	30-40	---	---	---	---	---	---	---	---			
Carryback	0-7	27-35	1.30-1.50	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.20	.28	2	7	38
	7-24	40-60	1.40-1.60	0.06-0.2	0.12-0.16	6.0-8.9	0.5-2.0	.20	.24			
	24-34	---	---	---	---	---	---	---	---			
93:												
Enko	0-8	5-10	1.40-1.50	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	8-29	10-18	1.45-1.55	0.6-2	0.10-0.13	0.0-2.9	0.0-0.5	.24	.24			
	29-45	10-18	1.60-1.65	0.06-0.2	0.10-0.13	0.0-2.9	0.0-0.5	.20	.24			
	45-62	5-15	1.60-1.65	0.06-0.2	0.04-0.11	0.0-2.9	0.0-0.5	.20	.24			
94:												
Enko	0-8	5-10	1.40-1.50	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	8-29	10-18	1.45-1.55	0.6-2	0.10-0.13	0.0-2.9	0.0-0.5	.24	.24			
	29-45	10-18	1.60-1.65	0.06-0.2	0.10-0.13	0.0-2.9	0.0-0.5	.20	.24			
	45-62	5-15	1.60-1.65	0.06-0.2	0.04-0.11	0.0-2.9	0.0-0.5	.20	.24			
Catlow	0-3	15-25	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.32	5	7	38
	3-22	15-25	1.20-1.30	0.6-2	0.05-0.09	0.0-2.9	0.5-1.0	.17	.28			
	22-31	5-15	1.40-1.55	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17			
	31-60	0-10	1.30-1.40	6-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.10			
95:												
Enko	0-8	5-10	1.40-1.50	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	8-29	10-18	1.45-1.55	0.6-2	0.10-0.13	0.0-2.9	0.0-0.5	.24	.24			
	29-45	10-18	1.60-1.65	0.06-0.2	0.10-0.13	0.0-2.9	0.0-0.5	.20	.24			
	45-62	5-15	1.60-1.65	0.06-0.2	0.04-0.11	0.0-2.9	0.0-0.5	.20	.24			
Catlow	0-3	15-25	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.32	5	7	38
	3-22	15-25	1.20-1.30	0.6-2	0.05-0.09	0.0-2.9	0.5-1.0	.17	.28			
	22-31	5-15	1.40-1.55	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17			
	31-60	0-10	1.30-1.40	6-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.10			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
96:												
Enko	0-8	5-10	1.40-1.50	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	8-29	10-18	1.45-1.55	0.6-2	0.10-0.13	0.0-2.9	0.0-0.5	.24	.24			
	29-45	10-18	1.60-1.65	0.06-0.2	0.10-0.13	0.0-2.9	0.0-0.5	.20	.24			
	45-62	5-15	1.60-1.65	0.06-0.2	0.04-0.11	0.0-2.9	0.0-0.5	.20	.24			
Catlow	0-3	15-25	1.20-1.30	0.6-2	0.06-0.10	0.0-2.9	1.0-2.0	.15	.32	5	8	0
	3-22	15-25	1.20-1.30	0.6-2	0.04-0.09	0.0-2.9	0.5-1.0	.17	.32			
	22-31	5-15	1.40-1.55	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.10	.17			
	31-60	0-10	1.30-1.40	6-20	0.01-0.04	0.0-2.9	0.0-0.5	.05	.10			
97:												
Erakatak	0-7	27-35	1.30-1.40	0.2-0.6	0.06-0.08	3.0-5.9	2.0-4.0	.05	.28	2	8	0
	7-16	35-40	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.10	.28			
	16-25	40-55	1.35-1.50	0.06-0.6	0.06-0.11	6.0-8.9	0.5-1.0	.10	.28			
	25-35	---	---	---	---	---	---	---	---			
98:												
Erakatak	0-7	18-27	1.30-1.40	0.6-2	0.08-0.12	0.0-2.9	2.0-4.0	.10	.24	2	8	0
	7-16	35-40	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.10	.28			
	16-25	40-55	1.35-1.50	0.06-0.6	0.06-0.11	6.0-8.9	0.5-1.0	.10	.28			
	25-35	---	---	---	---	---	---	---	---			
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.15	.32			
	21-60	15-27	1.30-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.10	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
99:												
Erakatak	0-7	18-27	1.30-1.40	0.6-2	0.08-0.12	0.0-2.9	2.0-4.0	.10	.24	2	8	0
	7-16	35-40	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.10	.28			
	16-25	40-55	1.35-1.50	0.06-0.6	0.06-0.11	6.0-8.9	0.5-1.0	.10	.28			
	25-35	---	---	---	---	---	---	---	---			
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
100:												
Erakatak	0-7	27-35	1.30-1.40	0.2-0.6	0.08-0.12	3.0-5.9	2.0-4.0	.10	.24	2	8	0
	7-16	35-40	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.10	.28			
	16-25	40-55	1.35-1.50	0.06-0.6	0.06-0.11	6.0-8.9	0.5-1.0	.10	.28			
	25-35	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
101:												
Erakatak	0-7	27-35	1.30-1.40	0.2-0.6	0.08-0.12	3.0-5.9	2.0-4.0	.10	.24	2	8	0
	7-16	35-40	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.10	.28			
	16-25	40-55	1.35-1.50	0.06-0.6	0.06-0.11	6.0-8.9	0.5-1.0	.10	.28			
	25-35	---	---	---	---	---	---	---	---			
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Hapgood	0-10	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.17	.20	3	8	0
	10-23	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-4.0	.15	.24			
	23-43	18-30	1.40-1.50	2-6	0.07-0.13	0.0-2.9	1.0-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
102:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.05	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
103:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.11-0.15	3.0-5.9	1.0-2.0	.10	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
104:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.05	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Brezniak	0-3	18-20	1.35-1.50	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.28	.28	1	7	38
	3-7	35-50	1.35-1.55	0.06-0.2	0.13-0.18	6.0-8.9	1.0-2.0	.28	.28			
	7-10	35-50	1.35-1.55	0.06-0.2	0.13-0.18	6.0-8.9	0.5-1.0	.28	.28			
	10-20	---	---	---	---	---	---	---	---			
105:												
Felcher	0-10	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
106:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.11-0.15	3.0-5.9	1.0-2.0	.10	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Sagehen	0-10	27-35	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	0.5-1.0	.24	.32	1	7	38
	10-19	25-35	1.30-1.50	0.2-0.6	0.08-0.13	3.0-5.9	0.0-0.5	.20	.37			
	19-29	---	---	---	---	---	---	---	---			
107:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.11-0.15	3.0-5.9	1.0-2.0	.10	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Sagehen	0-10	27-35	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	0.5-1.0	.24	.32	1	7	38
	10-19	25-35	1.30-1.50	0.2-0.6	0.08-0.13	3.0-5.9	0.0-0.5	.20	.37			
	19-29	---	---	---	---	---	---	---	---			
108:												
Felcher	0-10	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Fitzwater	0-9	18-27	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-3.0	.17	.32	3	8	0
	9-16	18-27	1.25-1.45	2-6	0.04-0.10	0.0-2.9	1.0-2.0	.17	.32			
	16-30	18-27	1.25-1.45	2-6	0.02-0.07	0.0-2.9	0.5-1.0	.15	.37			
	30-58	15-25	1.25-1.45	2-6	0.02-0.05	0.0-2.9	0.0-0.5	.10	.32			
	58-68	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
109:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.11-0.15	3.0-5.9	1.0-2.0	.10	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Pernty	0-3	20-25	1.30-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.24	.28	1	7	38
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
Ninemile	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
110:												
Felcher	0-10	27-35	1.20-1.30	0.2-0.6	0.11-0.15	3.0-5.9	1.0-2.0	.10	.37	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
111:												
Final	0-3	15-25	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.43	.43	5	4	86
	3-12	40-55	1.40-1.50	0.06-0.2	0.07-0.10	6.0-8.9	1.0-2.0	.20	.20			
	12-24	40-50	1.40-1.50	0.06-0.2	0.04-0.07	6.0-8.9	0.0-0.5	.20	.20			
	24-42	27-40	1.30-1.45	0.2-0.6	0.06-0.09	3.0-5.9	0.0-0.5	.37	.37			
	42-60	27-40	1.30-1.45	0.2-0.6	0.09-0.12	3.0-5.9	0.0-0.5	.37	.37			
112:												
Fitzwater	0-9	18-27	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-3.0	.17	.32	3	8	0
	9-16	18-27	1.25-1.45	2-6	0.04-0.10	0.0-2.9	1.0-2.0	.17	.32			
	16-30	18-27	1.25-1.45	2-6	0.02-0.07	0.0-2.9	0.5-1.0	.15	.37			
	30-58	15-25	1.25-1.45	2-6	0.02-0.05	0.0-2.9	0.0-0.5	.10	.32			
	58-68	---	---	---	---	---	---	---	---			
Hapgood, thick surface	0-10	15-20	1.20-1.30	2-6	0.09-0.11	0.0-2.9	3.0-8.0	.17	.20	3	4	86
	10-23	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-4.0	.15	.24			
	23-43	18-30	1.40-1.50	2-6	0.07-0.13	0.0-2.9	1.0-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
Hapgood, thin surface	0-5	15-20	1.20-1.30	2-6	0.03-0.06	0.0-2.9	3.0-8.0	.05	.20	3	8	0
	5-23	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-4.0	.15	.24			
	23-43	18-30	1.40-1.50	2-6	0.07-0.13	0.0-2.9	1.0-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
113:												
Fitzwater	0-9	18-27	1.20-1.40	2-6	0.07-0.10	0.0-2.9	1.0-3.0	.17	.32	3	8	0
	9-16	18-27	1.25-1.45	2-6	0.04-0.10	0.0-2.9	1.0-2.0	.17	.32			
	16-30	18-27	1.25-1.45	2-6	0.02-0.07	0.0-2.9	0.5-1.0	.15	.37			
	30-58	15-25	1.25-1.45	2-6	0.02-0.05	0.0-2.9	0.0-0.5	.10	.32			
	58-68	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
114:												
Flank	0-1	5-10	1.30-1.50	6-20	0.02-0.05	0.0-2.9	1.0-2.0	.05	.20	1	8	0
	1-9	5-18	1.30-1.50	0.6-6	0.07-0.10	0.0-2.9	0.0-0.5	.15	.28			
	9-19	---	---	---	---	---	---	---	---			
Lava flows	0-60	---	---	---	---	---	---	---	---	---	---	---
115:												
Fourwheel	0-7	20-27	1.30-1.50	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.24	.37	2	7	38
	7-22	45-60	1.30-1.50	0.0015-0.06	0.12-0.16	6.0-8.9	0.0-0.5	.28	.28			
	22-32	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
116:												
Fourwheel----------	0-7	20-27	1.30-1.50	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.15	.37	2	8	0
	7-22	45-60	1.30-1.50	0.0015-0.06	0.12-0.16	6.0-8.9	0.0-0.5	.28	.28			
	22-32	---	---	---	---	---	---	---	---			
117:												
Freznik----------	0-4	18-27	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.49	2	8	0
	4-12	35-40	1.35-1.45	0.2-0.6	0.15-0.18	3.0-5.9	0.5-1.0	.28	.37			
	12-20	40-55	1.40-1.50	0.0015-0.06	0.13-0.17	6.0-8.9	0.5-1.0	.32	.32			
	20-35	30-45	1.35-1.50	0.06-0.2	0.14-0.19	3.0-5.9	0.0-0.5	.43	.43			
	35-45	---	---	---	---	---	---	---	---			
118:												
Fury----------	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
119:												
Fury----------	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
120:												
Fury----------	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
Degarmo----------	0-3	20-27	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	1.0-4.0	.32	.32	5	6	48
	3-10	27-30	1.25-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-4.0	.37	.37			
	10-21	35-45	1.35-1.50	0.06-0.2	0.13-0.16	6.0-8.9	1.0-2.0	.20	.20			
	21-28	25-35	1.40-1.50	0.2-0.6	0.14-0.18	3.0-5.9	1.0-2.0	.28	.28			
	28-34	20-30	1.50-1.60	0.2-0.6	0.13-0.16	3.0-5.9	0.0-0.5	.20	.20			
	34-60	10-20	1.45-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.10	.24			
121:												
Fury----------	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
Housefield----------	0-6	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05	5	4	86
	6-36	18-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	36-48	18-35	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	48-60	40-60	1.40-1.50	0.06-0.2	0.14-0.17	6.0-8.9	1.0-5.0	.28	.28			
122:												
Fury----------	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
122:												
Housefield	0-6	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05	5	4	86
	6-36	18-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	36-48	18-35	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	48-60	40-60	1.40-1.50	0.06-0.2	0.14-0.17	6.0-8.9	1.0-5.0	.28	.28			
Skidoosprings	0-11	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	11-23	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	23-30	10-18	1.55-1.70	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	30-41	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	41-49	---	---	---	0.00-0.00	---	---	---	---			
	49-60	5-15	1.55-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.28	.28			
123:												
Fury	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
Opie	0-7	18-27	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	7-10	27-35	1.35-1.40	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.43	.43			
	10-16	18-27	1.25-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.49	.49			
	16-26	27-35	1.35-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-2.0	.43	.43			
	26-44	18-27	1.25-1.40	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.49	.49			
	44-64	5-15	1.40-1.45	0.6-2	0.09-0.12	0.0-2.9	0.5-1.0	.28	.49			
124:												
Fury	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
Skidoosprings	0-11	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	11-23	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	23-30	10-18	1.55-1.70	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	30-41	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	41-49	---	---	---	0.00-0.00	---	---	---	---			
	49-60	5-15	1.55-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.28	.28			
Opie	0-7	18-27	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	7-10	27-35	1.35-1.40	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.43	.43			
	10-16	18-27	1.25-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.49	.49			
	16-26	27-35	1.35-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-2.0	.43	.43			
	26-44	18-27	1.25-1.40	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.49	.49			
	44-64	5-15	1.40-1.45	0.6-2	0.09-0.12	0.0-2.9	0.5-1.0	.28	.49			
125:												
Fury	0-14	20-25	1.25-1.40	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	14-21	27-35	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	21-27	30-35	1.30-1.35	0.2-0.6	0.18-0.21	3.0-5.9	1.0-2.0	.37	.37			
	27-34	20-25	1.25-1.35	0.6-2	0.18-0.21	0.0-2.9	0.5-1.0	.49	.49			
	34-44	10-15	0.85-0.95	0.6-2	0.18-0.21	0.0-2.9	0.0-0.5	.55	.55			
	44-60	30-40	1.35-1.40	0.2-0.6	0.18-0.21	3.0-5.9	0.5-1.0	.43	.43			
Widowspring	0-22	20-25	1.25-1.40	0.6-2	0.20-0.22	0.0-2.9	2.0-5.0	.32	.32	5	5	56
	22-43	20-35	1.30-1.45	0.2-2	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37			
	43-63	20-25	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.2-1.0	.37	.37			
126:												
Gaib	0-7	18-27	1.35-1.50	0.6-2	0.11-0.15	0.0-2.9	2.0-5.0	.17	.24	1	7	38
	7-16	25-35	1.35-1.50	0.2-0.6	0.07-0.11	3.0-5.9	0.5-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
127:												
Gaib	0-7	18-27	1.35-1.50	0.6-2	0.11-0.15	0.0-2.9	2.0-5.0	.17	.24	1	7	38
	7-16	25-35	1.35-1.50	0.2-0.6	0.07-0.11	3.0-5.9	0.5-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Ateron	0-5	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
128:												
Gaib	0-7	18-27	1.35-1.50	0.6-2	0.11-0.15	0.0-2.9	2.0-5.0	.17	.24	1	7	38
	7-16	25-35	1.35-1.50	0.2-0.6	0.07-0.11	3.0-5.9	0.5-2.0	.10	.24			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
129:												
Gilispie	0-5	18-25	1.30-1.40	0.6-2	0.14-0.18	0.0-2.9	2.0-4.0	.24	.24	1	6	48
	5-14	25-35	1.30-1.50	0.6-2	0.14-0.20	3.0-5.9	1.0-2.0	.28	.28			
	14-24	---	---	---	---	---	---	---	---			
Noname	0-3	20-27	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	3-12	20-35	1.30-1.50	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.28	.32			
	12-22	---	---	---	---	---	---	---	---			
130:												
Gochea	0-9	10-20	1.40-1.50	2-6	0.09-0.11	0.0-2.9	1.0-2.0	.20	.20	5	3	86
	9-13	18-25	1.40-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-2.0	.20	.24			
	13-27	15-20	1.45-1.55	0.6-2	0.06-0.11	0.0-2.9	0.5-1.0	.24	.28			
	27-62	5-15	1.45-1.55	2-6	0.04-0.09	0.0-2.9	0.0-0.5	.17	.28			
131:												
Goldrun	0-24	1-5	1.50-1.60	6-20	0.06-0.08	0.0-2.9	0.5-1.0	.20	.20	5	2	134
	24-56	1-5	1.50-1.60	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.28	.28			
	56-62	20-30	1.40-1.50	0.2-0.6	0.14-0.17	0.0-2.9	0.0-0.5	.24	.24			
Alvodest	0-6	30-40	1.35-1.40	0.2-0.6	0.03-0.07	3.0-5.9	0.5-1.0	.37	.37	5	4L	86
	6-42	35-60	1.30-1.45	0.06-0.2	0.03-0.07	6.0-8.9	0.0-0.5	.28	.28			
	42-78	25-50	1.30-1.45	0.06-0.2	0.03-0.07	6.0-8.9	0.0-0.5	.32	.32			
132:												
Gradon	0-3	10-20	1.30-1.40	2-6	0.10-0.12	0.0-2.9	1.0-2.0	.20	.32	2	4	86
	3-10	10-25	1.35-1.45	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.32	.32			
	10-32	25-35	1.40-1.50	0.2-0.6	0.10-0.15	3.0-5.9	0.5-1.0	.24	.28			
	32-48	---	---	---	---	---	---	---	---			
	48-52	---	---	---	---	---	---	---	---			
	52-62	5-15	1.40-1.55	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.32	.37			
133:												
Guano	0-3	10-18	1.30-1.50	2-6	0.07-0.10	0.0-2.9	0.5-1.0	.15	.20	2	4	86
	3-11	18-35	1.40-1.50	0.2-2	0.12-0.16	3.0-5.9	0.0-0.5	.24	.28			
	11-21	---	---	---	---	---	---	---	---			
134:												
Gumble	0-3	18-27	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	0.5-1.0	.20	.37	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
135:												
Gumble	0-3	18-27	1.35-1.45	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.17	.32	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
136:												
Gumble	0-3	18-27	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	0.5-1.0	.20	.37	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
Mahoon	0-3	18-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
Cagle	0-4	20-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.32	3	8	0
	4-12	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.28			
	12-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.20	.28			
	24-36	30-40	1.30-1.50	0.2-0.6	0.10-0.17	3.0-5.9	0.2-0.8	.28	.32			
	36-46	---	---	---	---	---	---	---	---			
137:												
Hackwood	0-11	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	5	7	38
	11-23	18-27	1.30-1.40	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	23-48	18-30	1.40-1.50	0.6-2	0.07-0.11	0.0-2.9	0.5-1.0	.17	.28			
	48-60	18-30	1.40-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.15	.28			
138:												
Hackwood	0-11	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	5	7	38
	11-23	18-27	1.30-1.40	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	23-48	18-30	1.40-1.50	0.6-2	0.07-0.11	0.0-2.9	0.5-1.0	.17	.28			
	48-60	18-30	1.40-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.15	.28			
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
139:												
Hapgood	0-10	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.17	.20	3	8	0
	10-23	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-4.0	.15	.24			
	23-43	18-30	1.40-1.50	2-6	0.07-0.13	0.0-2.9	1.0-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
140:												
Hart Camp	0-3	15-25	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	2	6	48
	3-9	20-30	1.30-1.40	0.2-0.6	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	9-19	20-30	1.30-1.45	0.2-0.6	0.11-0.15	0.0-2.9	0.5-1.0	.24	.32			
	19-29	---	---	---	---	---	---	---	---			
141:												
Hart Camp	0-3	15-25	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	2	6	48
	3-9	20-30	1.30-1.40	0.2-0.6	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	9-19	20-30	1.30-1.45	0.2-0.6	0.11-0.15	0.0-2.9	0.5-1.0	.24	.32			
	19-29	---	---	---	---	---	---	---	---			
142:												
Helphenstein	0-3	10-20	1.10-1.20	0.6-2	0.03-0.08	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	3-9	10-20	1.10-1.20	0.6-2	0.03-0.08	0.0-2.9	0.5-1.0	.43	.43			
	9-26	18-27	1.25-1.40	0.2-0.6	0.06-0.09	0.0-2.9	0.0-0.5	.43	.43			
	26-62	15-27	1.25-1.40	0.06-0.2	0.07-0.10	0.0-2.9	0.0-0.5	.43	.43			
Goldrun	0-24	1-5	1.50-1.60	6-20	0.08-0.10	0.0-2.9	0.5-1.0	.24	.24	5	2	134
	24-56	1-5	1.50-1.60	6-20	0.05-0.10	0.0-2.9	0.0-0.5	.28	.28			
	56-62	20-30	1.40-1.50	0.2-0.6	0.14-0.17	0.0-2.9	0.0-0.5	.24	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
143:												
Homefield	0-6	15-25	0.50-0.70	0.6-2	0.13-0.16	0.0-2.9	10-20	.05	.05	5	4	86
	6-36	18-25	0.50-0.70	0.6-2	0.16-0.20	0.0-2.9	10-20	.05	.05			
	36-48	18-35	0.50-0.70	0.6-2	0.16-0.20	0.0-2.9	10-20	.05	.05			
	48-60	40-60	1.40-1.50	0.06-0.2	0.12-0.15	6.0-8.9	1.0-5.0	.28	.28			
144:												
Housefield	0-6	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05	5	4	86
	6-36	18-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	36-48	18-35	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	48-60	40-60	1.40-1.50	0.06-0.2	0.14-0.17	6.0-8.9	1.0-5.0	.28	.28			
145:												
Housefield	0-6	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05	5	4	86
	6-36	18-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	36-48	18-35	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	48-60	40-60	1.40-1.50	0.06-0.2	0.14-0.17	6.0-8.9	1.0-5.0	.28	.28			
Doubleo	0-3	18-27	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	4.0-8.0	.20	.20	5	6	48
	3-10	35-50	1.30-1.40	0.0015-0.06	0.14-0.16	6.0-8.9	2.0-5.0	.24	.24			
	10-20	40-60	1.30-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	1.0-2.0	.24	.24			
	20-28	35-40	1.30-1.35	0.2-0.6	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28			
	28-45	5-15	1.40-1.45	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.43	.43			
	45-60	15-20	1.35-1.40	0.6-2	0.15-0.17	0.0-2.9	0.2-1.0	.55	.55			
146:												
Icene	0-6	15-25	1.10-1.20	0.6-2	0.05-0.09	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-22	20-30	1.30-1.50	0.06-0.2	0.03-0.05	0.0-2.9	0.5-1.0	.43	.43			
	22-44	20-30	1.30-1.50	0.06-0.2	0.03-0.05	0.0-2.9	0.0-0.5	.49	.49			
	44-62	20-30	1.40-1.60	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.43	.43			
Playas	0-60	35-70	1.10-1.50	0.0015-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	5	4L	86
147:												
Icene	0-6	10-20	1.10-1.20	0.6-2	0.03-0.08	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	6-22	20-30	1.30-1.50	0.06-0.2	0.03-0.05	0.0-2.9	0.5-1.0	.43	.43			
	22-44	20-30	1.30-1.50	0.06-0.2	0.03-0.05	0.0-2.9	0.0-0.5	.49	.49			
	44-62	20-30	1.40-1.60	0.2-0.6	0.03-0.05	0.0-2.9	0.0-0.5	.43	.43			
Playas	0-60	35-70	1.10-1.50	0.0015-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	5	4L	86
148:												
Jesse Camp	0-4	10-25	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-2.0	.43	.43	5	6	48
	4-34	18-27	1.35-1.45	0.2-0.6	0.16-0.19	3.0-5.9	0.5-2.0	.43	.43			
	34-50	18-27	1.35-1.45	0.2-0.6	0.16-0.19	3.0-5.9	0.5-1.0	.43	.43			
	50-60	10-25	1.30-1.40	0.6-6	0.10-0.13	0.0-2.9	0.0-0.5	.20	.37			
149:												
Jimgreen	0-10	10-35	0.30-0.50	0.6-2	0.40-0.50	---	30-60	.02	.02	5	2	134
	10-12	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	12-32	10-35	0.30-0.70	0.6-2	0.40-0.50	---	30-60	.02	.02			
	32-44	10-35	0.30-0.70	0.6-2	0.40-0.50	---	30-60	.02	.02			
	44-60	10-35	0.30-0.70	0.6-2	0.40-0.50	---	30-60	.02	.02			
150:												
Jimgreen	0-10	10-35	0.30-0.50	0.6-2	0.40-0.50	---	30-60	.02	.02	5	2	134
	10-12	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	12-32	10-35	0.30-0.70	0.6-2	0.40-0.50	---	30-60	.02	.02			
	32-44	10-35	0.30-0.70	0.6-2	0.40-0.50	---	30-60	.02	.02			
	44-60	10-35	0.30-0.70	0.6-2	0.40-0.50	---	30-60	.02	.02			
Housefield	0-6	15-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05	5	4	86
	6-36	18-25	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	36-48	18-35	0.50-0.70	0.6-2	0.25-0.35	0.0-2.9	10-20	.05	.05			
	48-60	40-60	1.40-1.50	0.06-0.2	0.14-0.17	6.0-8.9	1.0-5.0	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
151:												
Kegler	0-10	10-20	1.50-1.65	2-6	0.14-0.16	0.0-2.9	1.0-3.0	.32	.32	2	3	86
	10-32	18-30	1.45-1.60	0.6-2	0.17-0.19	3.0-5.9	0.5-1.0	.28	.28			
	32-37	15-25	1.45-1.60	0.6-2	0.15-0.17	0.0-2.9	0.0-0.5	.43	.43			
	37-49	---	---	---	0.00-0.00	---	---	---	---			
	49-62	10-20	1.35-1.50	0.6-2	0.00-0.00	0.0-2.9	0.0-0.5	.43	.43			
152:												
Kerrfield	0-3	20-27	1.40-1.45	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.32	.32	3	6	48
	3-12	18-27	1.40-1.50	0.6-2	0.12-0.17	0.0-2.9	0.5-2.0	.37	.37			
	12-26	10-18	1.50-1.60	2-6	0.10-0.13	0.0-2.9	0.0-0.5	.24	.24			
	26-33	2-10	1.50-1.60	6-20	0.03-0.07	0.0-2.9	0.0-0.5	.10	.20			
	33-43	---	---	---	---	---	---	---	---			
153:												
Klicker	0-3	20-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.24	2	8	0
	3-13	20-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.24			
	13-24	27-35	1.40-1.50	0.2-0.6	0.05-0.10	3.0-5.9	0.5-2.0	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
154:												
Klicker	0-3	20-27	1.30-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-4.0	.05	.24	2	8	0
	3-13	20-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.24			
	13-24	27-35	1.40-1.50	0.2-0.6	0.05-0.10	3.0-5.9	0.5-2.0	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
155:												
Krackle, north slopes	0-4	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.28	2	7	38
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
Krackle, south slopes	0-4	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.28	2	7	38
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
156:												
Krackle	0-4	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.17	.28	2	8	0
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
157:												
Krackle	0-4	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-3.0	.17	.28	2	8	0
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
158:												
Krackle	0-4	27-35	1.20-1.30	0.2-0.6	0.14-0.17	3.0-5.9	1.0-3.0	.20	.28	2	8	0
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
159:												
Krackle	0-4	27-35	1.20-1.30	0.2-0.6	0.14-0.17	3.0-5.9	1.0-3.0	.20	.28	2	8	0
	4-15	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.17	.32			
	15-30	25-35	1.20-1.30	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.17	.37			
	30-40	---	---	---	---	---	---	---	---			
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	2	7	38
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
Hackwood	0-11	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	3.0-8.0	.17	.20	5	7	38
	11-23	18-27	1.30-1.40	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	23-48	18-30	1.40-1.50	0.6-2	0.07-0.11	0.0-2.9	0.5-1.0	.17	.28			
	48-60	18-30	1.40-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.15	.28			
160:												
Ladycomb	0-2	27-35	1.35-1.40	0.2-0.6	0.16-0.18	3.0-5.9	1.0-3.0	.20	.24	1	7	38
	2-8	25-35	1.30-1.40	0.2-0.6	0.13-0.19	3.0-5.9	1.0-2.0	.24	.24			
	8-18	---	---	---	---	---	---	---	---			
161:												
Lambranch	0-3	20-27	1.30-1.50	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.32	5	5	56
	3-7	27-30	1.30-1.50	0.2-0.6	0.17-0.20	3.0-5.9	0.5-1.0	.32	.32			
	7-14	40-45	1.30-1.40	0.06-0.2	0.06-0.09	6.0-8.9	0.0-0.5	.10	.28			
	14-19	25-40	1.35-1.45	0.2-0.6	0.06-0.10	3.0-5.9	0.0-0.5	.05	.24			
	19-27	40-45	1.30-1.40	0.06-0.2	0.06-0.09	6.0-8.9	0.0-0.5	.10	.28			
	27-60	20-35	1.30-1.45	0.2-2	0.06-0.10	3.0-5.9	0.0-0.5	.15	.32			
162:												
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Egyptcreek	0-8	18-25	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.24	2	8	0
	8-18	20-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28			
	18-24	20-27	1.35-1.50	0.6-2	0.05-0.10	0.0-2.9	0.5-1.0	.10	.28			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
163:												
Lambring, thick surface	0-10	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	10-12	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.15	.32			
	21-60	15-27	1.30-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.10	.32			
Lambring, thin surface	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.15	.32			
	21-60	15-27	1.30-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.10	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
164:												
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
165:												
Langslet	0-14	40-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.24	5	4	86
	14-23	35-40	1.30-1.50	0.2-0.6	0.15-0.18	3.0-5.9	0.5-1.0	.28	.28			
	23-49	35-50	1.30-1.50	0.06-0.2	0.13-0.18	6.0-8.9	0.0-0.5	.24	.24			
	49-62	30-40	1.30-1.50	0.2-0.6	0.15-0.18	3.0-5.9	0.0-0.5	.28	.28			
166:												
Lava flows	0-60	---	---	---	---	---	---	---	---	---	---	---
167:												
Lava flows	0-60	---	---	---	---	---	---	---	---	---	---	---
Flank	0-1	5-15	1.30-1.50	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.15	.28	1	5	56
	1-9	5-18	1.30-1.50	0.6-6	0.07-0.10	0.0-2.9	0.0-0.5	.15	.28			
	9-19	---	---	---	---	---	---	---	---			
168:												
Lawen	0-10	5-10	1.45-1.50	2-6	0.13-0.15	0.0-2.9	1.0-2.0	.17	.17	5	3	86
	10-15	10-18	1.40-1.50	0.2-0.6	0.15-0.18	0.0-2.9	0.5-1.0	.32	.32			
	15-40	5-10	1.50-1.60	0.2-0.6	0.13-0.15	0.0-2.9	0.0-0.5	.32	.32			
	40-60	5-10	1.50-1.60	0.2-0.6	0.13-0.15	0.0-2.9	0.0-0.5	.32	.32			
169:												
Leathers	0-2	10-20	1.20-1.30	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	2-9	10-20	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.43	.43			
	9-24	10-18	1.40-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.32	.32			
	24-28	10-18	1.40-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28			
	28-52	5-18	1.40-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.32	.32			
	52-61	0-5	1.50-1.70	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
170:												
Leathers	0-2	10-20	1.20-1.30	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.43	.43	5	4L	86
	2-9	10-20	1.20-1.30	0.6-2	0.10-0.14	0.0-2.9	1.0-2.0	.43	.43			
	9-24	10-18	1.40-1.50	0.6-2	0.08-0.12	0.0-2.9	0.5-1.0	.32	.32			
	24-28	10-18	1.40-1.50	0.2-0.6	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28			
	28-52	5-18	1.40-1.50	2-6	0.05-0.10	0.0-2.9	0.0-0.5	.32	.32			
	52-61	0-5	1.50-1.70	6-20	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
171:												
Leemorris	0-5	27-35	1.20-1.40	0.2-0.6	0.13-0.16	3.0-5.9	2.0-4.0	.20	.24	2	7	38
	5-26	30-40	1.20-1.40	0.2-0.6	0.13-0.16	3.0-5.9	2.0-4.0	.24	.28			
	26-30	40-60	1.30-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-2.0	.15	.17			
	30-40	---	---	---	---	---	---	---	---			
Buckwilder	0-8	30-40	1.20-1.40	0.2-0.6	0.10-0.13	3.0-5.9	2.0-4.0	.15	.24	2	8	0
	8-21	60-75	1.30-1.50	0.0015-0.06	0.11-0.13	6.0-8.9	1.0-2.0	.17	.17			
	21-27	60-75	1.35-1.50	0.0015-0.06	0.09-0.12	6.0-8.9	0.5-1.0	.15	.17			
	27-37	---	---	---	---	---	---	---	---			
172:												
Leemorris	0-5	27-35	1.20-1.40	0.2-0.6	0.13-0.16	3.0-5.9	2.0-4.0	.20	.24	2	7	38
	5-26	30-40	1.20-1.40	0.2-0.6	0.13-0.16	3.0-5.9	2.0-4.0	.24	.28			
	26-30	40-60	1.30-1.50	0.06-0.2	0.10-0.15	6.0-8.9	0.5-2.0	.15	.17			
	30-40	---	---	---	---	---	---	---	---			
Buckwilder	0-8	30-40	1.20-1.40	0.2-0.6	0.10-0.13	3.0-5.9	2.0-4.0	.15	.24	2	8	0
	8-21	60-75	1.30-1.50	0.0015-0.06	0.11-0.13	6.0-8.9	1.0-2.0	.17	.17			
	21-27	60-75	1.35-1.50	0.0015-0.06	0.09-0.12	6.0-8.9	0.5-1.0	.15	.17			
	27-37	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
173:												
Legler	0-4	27-30	1.30-1.40	0.2-0.6	0.17-0.20	3.0-5.9	1.0-2.0	.32	.32	5	7	38
	4-45	25-35	1.35-1.45	0.2-0.6	0.14-0.19	3.0-5.9	0.3-2.0	.37	.37			
	45-62	20-30	1.35-1.45	0.2-0.6	0.12-0.18	3.0-5.9	0.0-0.5	.32	.37			
174:												
Locane	0-7	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	7-15	35-50	1.30-1.50	0.06-0.6	0.06-0.12	6.0-8.9	0.3-1.0	.10	.28			
	15-25	---	---	---	---	---	---	---	---			
175:												
Lolak	0-3	10-20	1.30-1.40	0.6-2	0.06-0.10	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	3-10	35-40	1.40-1.50	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.37	.37			
	10-28	40-60	1.40-1.50	0.0015-0.06	0.06-0.09	6.0-8.9	0.5-1.0	.32	.32			
	28-40	35-50	1.40-1.50	0.06-0.2	0.07-0.10	6.0-8.9	0.0-0.5	.32	.32			
	40-60	25-40	1.30-1.45	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28			
176:												
Lolak	0-3	10-20	1.30-1.40	0.6-2	0.06-0.10	0.0-2.9	1.0-2.0	.49	.49	5	3	86
	3-10	35-40	1.40-1.50	0.06-0.2	0.07-0.10	3.0-5.9	0.5-1.0	.37	.37			
	10-28	40-60	1.40-1.50	0.0015-0.06	0.06-0.09	6.0-8.9	0.5-1.0	.32	.32			
	28-40	35-50	1.40-1.50	0.06-0.2	0.07-0.10	6.0-8.9	0.0-0.5	.32	.32			
	40-60	25-40	1.30-1.45	0.2-0.6	0.10-0.15	3.0-5.9	0.0-0.5	.28	.28			
Ausmus	0-2	10-20	1.00-1.20	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	2-9	27-35	1.20-1.30	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.43	.43			
	9-16	27-35	1.20-1.30	0.2-0.6	0.07-0.10	3.0-5.9	0.3-0.7	.43	.43			
	16-29	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.37	.37			
	29-69	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.32	.32			
177:												
Lonely	0-4	27-35	1.20-1.30	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.28	.28	2	5	56
	4-16	27-35	1.20-1.30	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.24	.37			
	16-24	27-35	1.20-1.30	0.2-0.6	0.14-0.18	3.0-5.9	0.0-0.5	.20	.37			
	24-34	---	---	---	---	---	---	---	---			
Doyn	0-2	20-30	1.30-1.40	0.6-2	0.12-0.14	0.0-2.9	1.0-3.0	.24	.24	1	5	56
	2-8	20-30	1.30-1.40	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.32			
	8-18	---	---	---	---	---	---	---	---			
178:												
Lonely	0-4	27-35	1.20-1.30	0.2-0.6	0.13-0.18	3.0-5.9	1.0-2.0	.17	.32	2	8	0
	4-16	27-35	1.20-1.30	0.2-0.6	0.16-0.20	3.0-5.9	0.5-1.0	.24	.37			
	16-24	27-35	1.20-1.30	0.2-0.6	0.14-0.18	3.0-5.9	0.0-0.5	.20	.37			
	24-34	---	---	---	---	---	---	---	---			
Robson	0-4	27-35	1.30-1.50	0.2-0.6	0.09-0.12	3.0-5.9	1.0-2.0	.15	.28	1	8	0
	4-13	40-50	1.40-1.50	0.06-0.2	0.05-0.08	6.0-8.9	0.5-1.0	.10	.32			
	13-23	---	---	---	---	---	---	---	---			
179:												
Longcreek	0-7	18-27	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28	1	8	0
	7-18	35-50	1.35-1.55	0.06-0.2	0.06-0.12	6.0-8.9	0.5-2.0	.20	.28			
	18-28	---	---	---	---	---	---	---	---			
Cleavage	0-7	15-20	1.35-1.55	0.6-2	0.04-0.05	0.0-2.9	1.0-3.0	.05	.43	1	8	0
	7-15	20-35	1.35-1.55	0.2-0.6	0.08-0.12	0.0-2.9	1.0-2.0	.10	.49			
	15-25	---	---	---	---	---	---	---	---			
180:												
Longcreek	0-7	18-27	1.35-1.50	0.6-2	0.09-0.12	0.0-2.9	1.0-3.0	.17	.28	1	8	0
	7-18	35-50	1.35-1.55	0.06-0.2	0.06-0.12	6.0-8.9	0.5-2.0	.20	.28			
	18-28	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
181:												
Loupence	0-2	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	2-24	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-4.0	.24	.24			
	24-49	18-27	1.10-1.20	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.28	.28			
	49-60	10-15	1.20-1.40	2-6	0.11-0.14	0.0-2.9	0.5-1.0	.24	.24			
182:												
Madeline	0-2	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	2-10	35-40	1.45-1.55	0.2-0.6	0.15-0.18	3.0-5.9	1.0-2.0	.32	.32			
	10-19	35-50	1.35-1.55	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.24	.28			
	19-29	---	---	---	---	---	---	---	---			
183:												
Madeline	0-2	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	2-10	35-40	1.45-1.55	0.2-0.6	0.15-0.18	3.0-5.9	1.0-2.0	.32	.32			
	10-19	35-50	1.35-1.55	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.24	.28			
	19-29	---	---	---	---	---	---	---	---			
184:												
Madeline	0-2	27-30	1.40-1.50	0.6-2	0.13-0.16	3.0-5.9	1.0-2.0	.24	.28	1	7	38
	2-10	35-40	1.45-1.55	0.2-0.6	0.15-0.18	3.0-5.9	1.0-2.0	.32	.32			
	10-19	35-50	1.35-1.55	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.24	.28			
	19-29	---	---	---	---	---	---	---	---			
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
185:												
Madeline	0-2	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	2-10	35-40	1.45-1.55	0.2-0.6	0.15-0.18	3.0-5.9	1.0-2.0	.32	.32			
	10-19	35-50	1.35-1.55	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.24	.28			
	19-29	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
186:												
Mahoon	0-3	18-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
187:												
Mahoon	0-3	18-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
Brezniak	0-3	18-20	1.35-1.50	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.28	.28	1	7	38
	3-7	35-50	1.35-1.55	0.06-0.2	0.13-0.18	6.0-8.9	1.0-2.0	.28	.28			
	7-10	35-50	1.35-1.55	0.06-0.2	0.13-0.18	6.0-8.9	0.5-1.0	.28	.28			
	10-20	---	---	---	---	---	---	---	---			
Longcreek	0-7	18-27	1.35-1.50	0.6-2	0.11-0.14	0.0-2.9	1.0-3.0	.20	.28	1	7	38
	7-18	35-50	1.35-1.55	0.06-0.2	0.06-0.12	6.0-8.9	0.5-2.0	.20	.28			
	18-28	---	---	---	---	---	---	---	---			
188:												
Mahoon	0-3	18-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
188:												
Cagle	0-4	27-30	1.30-1.40	0.2-0.6	0.08-0.11	0.0-2.9	1.0-2.0	.15	.32	3	8	0
	4-12	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	1.0-2.0	.20	.28			
	12-24	35-50	1.30-1.50	0.06-0.2	0.09-0.13	6.0-8.9	0.5-1.0	.20	.28			
	24-36	30-40	1.30-1.50	0.2-0.6	0.10-0.17	3.0-5.9	0.2-0.8	.28	.32			
	36-46	---	---	---	---	---	---	---	---			
189:												
Mahoon	0-3	18-27	1.20-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-2.0	.43	.43	3	6	48
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
Risley	0-3	18-27	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	3	8	0
	3-25	35-55	1.40-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	25-37	27-40	1.30-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.24	.32			
	37-39	27-40	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.20	.32			
	39-49	---	---	---	---	---	---	---	---			
190:												
Mahoon	0-3	18-27	1.30-1.50	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.10	.28	3	8	0
	3-9	35-45	1.35-1.45	0.2-0.6	0.10-0.15	3.0-5.9	1.0-2.0	.24	.32			
	9-18	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.5-1.0	.20	.24			
	18-25	40-60	1.35-1.45	0.06-0.2	0.11-0.15	6.0-8.9	0.0-0.5	.20	.24			
	25-35	---	---	---	---	---	---	---	---			
Cotant	0-3	18-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.20	.28	2	7	38
	3-13	40-50	1.35-1.40	0.06-0.2	0.12-0.15	6.0-8.9	1.0-2.0	.24	.24			
	13-23	---	---	---	---	---	---	---	---			
191:												
Mcbain	0-5	10-20	1.20-1.30	0.6-2	0.05-0.08	0.0-2.9	2.0-4.0	.43	.43	5	4L	86
	5-22	18-25	1.35-1.55	0.6-2	0.05-0.08	3.0-5.9	1.0-2.0	.43	.43			
	22-27	27-35	1.30-1.50	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.32	.32			
	27-37	10-18	1.40-1.55	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.55	.55			
	37-43	27-30	1.35-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43			
	43-60	15-27	1.35-1.45	0.6-2	0.14-0.17	3.0-5.9	0.0-0.5	.43	.43			
Ausmus	0-2	10-20	1.00-1.20	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	2-9	27-35	1.20-1.30	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.43	.43			
	9-16	27-35	1.20-1.30	0.2-0.6	0.07-0.10	3.0-5.9	0.3-0.7	.43	.43			
	16-29	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.37	.37			
	29-69	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.32	.32			
192:												
McConnel	0-3	5-15	1.40-1.60	2-6	0.07-0.10	0.0-2.9	0.8-1.0	.17	.24	5	4	86
	3-11	5-15	1.40-1.60	2-6	0.07-0.11	0.0-2.9	0.5-1.0	.17	.24			
	11-62	2-5	1.50-1.60	20-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.17			
193:												
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
194:												
Merlin, very stony	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
194:												
Merlin, very cobbly---	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
195:												
Merlin----------	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Ateron----------	0-5	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.24	.28	1	7	38
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
196:												
Merlin----------	0-7	27-30	1.20-1.30	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Ateron----------	0-5	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
Rubble land----------	0-60	---	---	---	---	---	---	---	---	---	---	---
197:												
Merlin----------	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Ateron----------	0-5	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
Ticino----------	0-9	18-27	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-4.0	.20	.28	2	8	0
	9-26	25-35	1.35-1.50	0.6-2	0.10-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-29	---	---	---	---	---	---	---	---			
	29-39	---	---	---	---	---	---	---	---			
198:												
Merlin----------	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Erakatak----------	0-7	18-27	1.30-1.40	0.6-2	0.08-0.12	0.0-2.9	2.0-4.0	.10	.24	2	8	0
	7-16	35-40	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.10	.28			
	16-25	40-55	1.35-1.50	0.06-0.6	0.06-0.11	6.0-8.9	0.5-1.0	.10	.28			
	25-35	---	---	---	---	---	---	---	---			
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
199:												
Merlin	0-7	27-30	1.20-1.30	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Observation	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
200:												
Merlin	0-7	27-30	1.20-1.30	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Observation	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
201:												
Merlin	0-7	27-30	1.20-1.30	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
202:												
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Teguro	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
203:												
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Teguro	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
204:												
Mesman	0-4	2-5	1.10-1.30	6-20	0.06-0.09	0.0-2.9	0.5-1.0	.43	.43	5	2	134
	4-26	18-35	1.20-1.35	0.2-0.6	0.01-0.09	3.0-5.9	0.5-1.0	.32	.32			
	26-62	10-30	1.30-1.45	0.06-0.2	0.01-0.09	0.0-2.9	0.0-0.5	.37	.37			
205:												
Mesman	0-4	5-10	1.10-1.30	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	4-26	18-35	1.20-1.35	0.2-0.6	0.01-0.09	3.0-5.9	0.5-1.0	.32	.32			
	26-62	10-30	1.30-1.45	0.06-0.2	0.01-0.09	0.0-2.9	0.0-0.5	.37	.37			
206:												
Mesman	0-4	5-10	1.10-1.30	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.37	.37	5	3	86
	4-26	18-35	1.20-1.35	0.2-0.6	0.01-0.09	3.0-5.9	0.5-1.0	.32	.32			
	26-62	10-30	1.30-1.45	0.06-0.2	0.01-0.09	0.0-2.9	0.0-0.5	.37	.37			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
206:												
Norad	0-3	20-27	1.10-1.30	0.6-2	0.21-0.23	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	3-23	27-45	1.20-1.40	0.06-0.2	0.16-0.23	3.0-5.9	0.5-2.0	.37	.37			
	23-34	27-35	1.20-1.40	0.06-0.2	0.21-0.23	3.0-5.9	0.0-0.5	.37	.37			
	34-61	20-40	1.50-1.60	0.06-0.2	0.21-0.23	3.0-5.9	0.0-0.5	.32	.32			
207:												
Middlebox	0-4	15-20	1.10-1.20	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.24	.28	3	4	86
	4-10	15-30	1.10-1.20	2-6	0.06-0.09	0.0-2.9	0.0-0.5	.15	.28			
	10-35	15-30	1.10-1.20	2-6	0.06-0.09	0.0-2.9	0.0-0.5	.15	.28			
	35-45	---	---	---	---	---	---	---	---			
208:												
Middlebox, north slopes	0-4	15-20	1.10-1.20	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.24	.28	3	4	86
	4-10	15-30	1.10-1.20	2-6	0.06-0.09	0.0-2.9	0.0-0.5	.15	.28			
	10-35	15-30	1.10-1.20	2-6	0.06-0.09	0.0-2.9	0.0-0.5	.15	.28			
	35-45	---	---	---	---	---	---	---	---			
Middlebox, south slopes	0-4	15-20	1.10-1.20	2-6	0.08-0.10	0.0-2.9	0.5-1.0	.24	.28	3	4	86
	4-10	15-30	1.10-1.20	2-6	0.06-0.09	0.0-2.9	0.0-0.5	.15	.28			
	10-35	15-30	1.10-1.20	2-6	0.06-0.09	0.0-2.9	0.0-0.5	.15	.28			
	35-45	---	---	---	---	---	---	---	---			
209:												
Minam	0-3	15-25	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	3.0-7.0	.24	.24	5	6	48
	3-29	18-27	1.25-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-5.0	.24	.28			
	29-39	18-27	1.25-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.32	.32			
	39-52	20-30	1.35-1.50	0.6-2	0.13-0.16	0.0-2.9	0.5-1.0	.24	.28			
	52-62	15-20	1.35-1.50	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.24	.28			
210:												
Minam	0-3	15-25	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	3.0-7.0	.24	.24	5	6	48
	3-29	18-27	1.25-1.35	0.6-2	0.12-0.15	0.0-2.9	1.0-5.0	.24	.28			
	29-39	18-27	1.25-1.35	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.32	.32			
	39-52	20-30	1.35-1.50	0.6-2	0.13-0.16	0.0-2.9	0.5-1.0	.24	.28			
	52-62	15-20	1.35-1.50	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.24	.28			
Welch	0-5	15-20	1.25-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	5-60	20-35	1.30-1.45	0.2-0.6	0.16-0.21	3.0-5.9	0.5-3.0	.28	.55			
211:												
Modoc	0-2	10-15	1.40-1.50	2-6	0.08-0.11	0.0-2.9	1.0-2.0	.15	.20	2	3	86
	2-13	15-20	1.30-1.40	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28			
	13-22	20-27	1.30-1.40	0.6-2	0.14-0.17	3.0-5.9	0.5-1.0	.28	.28			
	22-25	27-35	1.30-1.40	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.20	.28			
	25-41	0-0	---	---	0.00-0.00	---	---	---	---			
	41-60	5-10	1.40-1.60	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.05	.17			
212:												
Morfitt	0-2	18-27	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	2-41	25-35	1.30-1.40	0.2-0.6	0.16-0.19	3.0-5.9	0.5-2.0	.32	.32			
	41-60	20-30	1.35-1.50	0.6-2	0.14-0.18	0.0-2.9	0.0-0.5	.37	.37			
213:												
Morganhills	0-8	5-18	1.30-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	8-15	5-20	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.28			
	15-17	5-20	1.30-1.50	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.20	.28			
	17-27	---	---	---	---	---	---	---	---			
214:												
Morganhills, more than 12 percent slopes	0-8	5-18	1.30-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	8-15	5-20	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.28			
	15-17	5-20	1.30-1.50	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.20	.28			
	17-27	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
214:												
Morganhills, less than 12 percent slopes----	0-8	5-18	1.30-1.50	2-6	0.10-0.12	0.0-2.9	0.5-1.0	.28	.28	2	3	86
	8-15	5-20	1.30-1.50	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.24	.28			
	15-17	5-20	1.30-1.50	2-6	0.06-0.08	0.0-2.9	0.0-0.5	.20	.28			
	17-27	---	---	---	---	---	---	---	---			
215:												
Mound----------	0-3	20-27	1.10-1.30	0.6-2	0.11-0.15	0.0-2.9	4.0-6.0	.17	.20	3	7	38
	3-10	20-27	1.10-1.30	0.6-2	0.08-0.11	0.0-2.9	4.0-6.0	.10	.20			
	10-20	35-50	1.20-1.30	0.06-0.2	0.09-0.12	6.0-8.9	1.0-4.0	.20	.32			
	20-53	40-50	1.20-1.40	0.06-0.2	0.09-0.12	6.0-8.9	0.5-1.0	.17	.28			
	53-63	---	---	---	---	---	---	---	---			
216:												
Nevador----------	0-3	10-15	1.40-1.50	2-6	0.04-0.07	0.0-2.9	1.0-2.0	.15	.24	5	5	56
	3-7	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.28			
	7-18	27-35	1.30-1.50	0.2-0.6	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	18-32	8-15	1.45-1.65	0.2-0.6	0.07-0.11	0.0-2.9	0.0-0.5	.28	.28			
	32-62	5-15	1.30-1.40	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.24	.28			
217:												
Ninemile----------	0-4	15-27	1.35-1.50	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.24	.28	1	7	38
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
218:												
Ninemile----------	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
219:												
Ninemile----------	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
220:												
Ninemile----------	0-4	15-27	1.35-1.50	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.24	.28	1	7	38
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Carvix----------	0-6	15-27	1.20-1.30	0.6-2	0.16-0.19	0.0-2.9	1.0-2.0	.32	.32	5	6	48
	6-19	15-27	1.20-1.30	0.6-2	0.14-0.18	0.0-2.9	1.0-2.0	.32	.32			
	19-60	18-30	1.25-1.35	0.6-2	0.14-0.18	0.0-2.9	0.2-1.0	.37	.37			
221:												
Ninemile----------	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Doyn----------	0-2	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	2-8	20-30	1.30-1.40	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.32			
	8-18	---	---	---	---	---	---	---	---			
222:												
Ninemile----------	0-4	15-27	1.35-1.50	0.6-2	0.10-0.14	0.0-2.9	1.0-3.0	.24	.28	1	7	38
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Edemaps----------	0-7	27-35	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	1.0-2.0	.20	.28	2	7	38
	7-18	35-45	1.40-1.50	0.06-0.2	0.12-0.15	6.0-8.9	0.5-2.0	.28	.32			
	18-25	35-40	1.35-1.45	0.2-0.6	0.10-0.16	3.0-5.9	0.5-1.0	.24	.32			
	25-30	---	---	---	---	---	---	---	---			
	30-40	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
223:												
Ninemile	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Madeline	0-2	27-30	1.40-1.50	0.6-2	0.13-0.16	3.0-5.9	1.0-2.0	.24	.28	1	7	38
	2-10	35-40	1.45-1.55	0.2-0.6	0.15-0.18	3.0-5.9	1.0-2.0	.32	.32			
	10-19	35-50	1.35-1.55	0.06-0.2	0.13-0.17	6.0-8.9	0.5-1.0	.24	.28			
	19-29	---	---	---	---	---	---	---	---			
224:												
Ninemile	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Pearlwise	0-6	27-35	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	2.0-4.0	.24	.24	2	6	48
	6-22	20-35	1.25-1.45	0.6-2	0.13-0.18	0.0-2.9	1.0-3.0	.28	.28			
	22-32	---	---	---	---	---	---	---	---			
225:												
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Reluctan	0-2	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.28	2	7	38
	2-9	15-25	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.32			
	9-26	25-35	1.40-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-36	---	---	---	---	---	---	---	---			
226:												
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Reluctan	0-2	15-25	1.30-1.40	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28	2	6	48
	2-9	15-25	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.32			
	9-26	25-35	1.40-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-36	---	---	---	---	---	---	---	---			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
227:												
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
228:												
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
229:												
Ninemile	0-4	15-27	1.35-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
230:												
Ninemile, very cobbly	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Ninemile, extremely stony	0-4	15-27	1.25-1.30	0.6-2	0.05-0.08	0.0-2.9	1.0-3.0	.05	.37	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
231:												
Ninemile, very cobbly	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Ninemile, extremely stony	0-4	15-27	1.25-1.30	0.6-2	0.05-0.08	0.0-2.9	1.0-3.0	.05	.37	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
232:												
Ninemile	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
Felcher	0-10	27-30	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.24	.32	2	7	38
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
233:												
Noname	0-3	27-30	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	1.0-2.0	.20	.28	1	7	38
	3-12	20-35	1.30-1.50	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.28	.32			
	12-22	---	---	---	---	---	---	---	---			
Dickle	0-3	27-35	1.20-1.40	0.2-0.6	0.10-0.13	3.0-5.9	2.0-5.0	.15	.24	1	8	0
	3-14	27-35	1.30-1.50	0.2-0.6	0.13-0.17	3.0-5.9	1.0-2.0	.28	.32			
	14-24	---	---	---	---	---	---	---	---			
234:												
Noname	0-3	20-27	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	3-12	20-35	1.30-1.50	0.2-0.6	0.13-0.17	3.0-5.9	0.5-1.0	.28	.32			
	12-22	---	---	---	---	---	---	---	---			
Duff	0-8	18-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	3	8	0
	8-24	18-27	1.30-1.40	0.6-2	0.10-0.17	0.0-2.9	2.0-4.0	.20	.24			
	24-43	18-27	1.40-1.50	0.6-2	0.07-0.14	0.0-2.9	0.5-2.0	.17	.28			
	43-53	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
235:												
Norad	0-3	20-27	1.10-1.30	0.6-2	0.21-0.23	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	3-23	27-45	1.20-1.40	0.06-0.2	0.16-0.23	3.0-5.9	0.5-2.0	.37	.37			
	23-34	27-35	1.20-1.40	0.06-0.2	0.21-0.23	3.0-5.9	0.0-0.5	.37	.37			
	34-61	20-40	1.50-1.60	0.06-0.2	0.21-0.23	3.0-5.9	0.0-0.5	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
236:												
Norad	0-3	20-27	1.10-1.30	0.6-2	0.21-0.23	0.0-2.9	1.0-2.0	.28	.28	5	6	48
	3-23	27-45	1.20-1.40	0.06-0.2	0.16-0.23	3.0-5.9	0.5-2.0	.37	.37			
	23-34	27-35	1.20-1.40	0.06-0.2	0.21-0.23	3.0-5.9	0.0-0.5	.37	.37			
	34-61	20-40	1.50-1.60	0.06-0.2	0.21-0.23	3.0-5.9	0.0-0.5	.32	.32			
Spangenburg	0-2	20-27	1.20-1.35	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	2-15	45-60	1.30-1.45	0.06-0.2	0.15-0.21	6.0-8.9	1.0-2.0	.24	.24			
	15-34	25-40	1.15-1.25	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-60	15-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
237:												
Nuss	0-4	18-27	1.20-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	4-12	18-30	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	12-15	18-30	1.25-1.45	0.6-2	0.11-0.15	0.0-2.9	0.5-2.0	.24	.32			
	15-25	---	---	---	---	---	---	---	---			
238:												
Nuss	0-4	18-27	1.20-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	4-12	18-30	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	12-15	18-30	1.25-1.45	0.6-2	0.11-0.15	0.0-2.9	0.5-2.0	.24	.32			
	15-25	---	---	---	---	---	---	---	---			
Merlin	0-7	27-30	1.20-1.30	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
239:												
Nuss	0-4	18-27	1.20-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	4-12	18-30	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	12-15	18-30	1.25-1.45	0.6-2	0.11-0.15	0.0-2.9	0.5-2.0	.24	.32			
	15-25	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
240:												
Observation	0-4	18-27	1.40-1.50	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	7	38
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
241:												
Observation	0-4	18-27	1.40-1.50	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	7	38
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
242:												
Observation	0-4	18-27	1.40-1.50	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	7	38
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
Royst	0-3	18-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.17	.28	2	8	0
	3-7	18-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28			
	7-14	35-45	1.30-1.50	0.06-0.2	0.09-0.12	6.0-8.9	1.0-2.0	.15	.32			
	14-22	35-45	1.30-1.50	0.06-0.2	0.09-0.12	6.0-8.9	1.0-2.0	.15	.32			
	22-23	---	---	---	---	---	---	---	---			
	23-33	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
242:												
Merlin----------	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
243:												
Observation----------	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
244:												
Observation----------	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
Lambring----------	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
245:												
Olac----------	0-4	10-20	1.40-1.60	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.15	.32	1	4	86
	4-13	20-30	1.30-1.50	0.6-2	0.05-0.09	0.0-2.9	0.3-0.7	.10	.28			
	13-23	---	---	---	---	---	---	---	---			
Atlow----------	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			
246:												
Opie----------	0-7	18-27	1.25-1.40	0.6-2	0.10-0.12	0.0-2.9	2.0-4.0	.43	.43	5	5	56
	7-10	27-35	1.35-1.40	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.43	.43			
	10-16	18-27	1.25-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.49	.49			
	16-26	27-35	1.35-1.40	0.2-0.6	0.11-0.14	3.0-5.9	1.0-2.0	.43	.43			
	26-44	18-27	1.25-1.40	0.6-2	0.11-0.16	0.0-2.9	0.5-1.0	.49	.49			
	44-64	5-15	1.40-1.45	0.6-2	0.09-0.12	0.0-2.9	0.5-1.0	.28	.49			
247:												
Oreneva----------	0-2	18-27	1.20-1.30	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.24	.28	2	7	38
	2-10	18-30	1.30-1.40	0.2-0.6	0.15-0.19	0.0-2.9	0.5-2.0	.28	.28			
	10-21	18-30	1.30-1.40	0.2-2	0.08-0.13	0.0-2.9	0.5-1.0	.10	.28			
	21-31	---	---	---	---	---	---	---	---			
248:												
Outerkirk----------	0-6	5-20	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	0.5-0.8	.28	.28	5	3	86
	6-29	5-20	1.30-1.40	0.6-2	0.06-0.10	0.0-2.9	0.2-0.5	.24	.28			
	29-51	3-15	1.50-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.28	.28			
	51-60	3-15	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
249:												
Outerkirk----------	0-4	5-20	1.30-1.40	0.6-2	0.11-0.13	0.0-2.9	0.5-0.8	.32	.32	5	3	86
	4-27	5-20	1.30-1.40	0.6-2	0.10-0.12	0.0-2.9	0.1-0.5	.28	.32			
	27-42	3-15	1.50-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.28	.32			
	42-60	27-35	1.40-1.50	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.49	.49			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
250:												
Outerkirk	0-6	5-20	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	0.5-0.8	.28	.28	5	3	86
	6-29	5-20	1.30-1.40	0.6-2	0.06-0.10	0.0-2.9	0.2-0.5	.24	.28			
	29-51	3-15	1.50-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.28	.28			
	51-60	3-15	1.40-1.50	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.28	.28			
Defenbaugh	0-5	20-27	1.30-1.45	0.6-2	0.08-0.10	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	5-29	20-35	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.32	.32			
	29-60	15-25	1.40-1.50	0.6-2	0.11-0.18	0.0-2.9	0.0-0.5	.43	.43			
251:												
Ozamis	0-11	18-27	1.10-1.30	0.6-2	0.18-0.21	0.0-2.9	1.0-3.0	.24	.24	5	6	48
	11-50	25-35	1.10-1.30	0.2-0.6	0.15-0.19	3.0-5.9	1.0-2.0	.28	.28			
	50-60	10-30	1.30-1.50	0.2-2	0.10-0.19	0.0-2.9	0.5-1.0	.28	.28			
252:												
Pearlwise	0-6	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.20	.28	2	7	38
	6-22	20-35	1.25-1.45	0.6-2	0.13-0.18	0.0-2.9	1.0-3.0	.28	.28			
	22-32	---	---	---	---	---	---	---	---			
253:												
Pernty	0-3	20-25	1.30-1.40	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
254:												
Pernty	0-3	20-25	1.30-1.40	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
255:												
Pernty	0-3	20-25	1.30-1.40	0.6-2	0.10-0.13	3.0-5.9	1.0-2.0	.24	.28	1	7	38
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
256:												
Pernty	0-3	20-25	1.30-1.40	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
257:												
Pernty	0-3	20-25	1.30-1.40	0.6-2	0.12-0.15	3.0-5.9	1.0-2.0	.28	.32	1	7	38
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Ninemile	0-4	27-30	1.35-1.50	0.2-0.6	0.08-0.12	3.0-5.9	1.0-3.0	.17	.32	1	8	0
	4-16	40-60	1.30-1.50	0.0015-0.06	0.10-0.13	6.0-8.9	1.0-2.0	.24	.28			
	16-26	---	---	---	---	---	---	---	---			
258:												
Pits	---	---	---	---	---	---	---	---	---	---	---	---
259:												
Playas	0-60	35-70	1.10-1.50	0.0015-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	5	4L	86

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
260:												
Playas	0-60	35-70	1.10-1.50	0.0015-0.06	0.02-0.04	6.0-8.9	0.0-0.1	.37	.37	5	4L	86
Thenarrows	0-3	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	3-14	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32			
	14-22	5-18	1.35-1.65	2-20	0.06-0.09	0.0-2.9	0.0-0.5	.28	.28			
	22-31	10-18	1.45-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.32	.32			
	31-54	5-18	1.35-1.65	2-20	0.05-0.10	0.0-2.9	0.0-0.5	.28	.28			
	54-60	5-10	1.45-1.65	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.28	.28			
261:												
Poall	0-8	18-27	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	8-17	40-50	1.25-1.35	0.06-0.2	0.12-0.15	6.0-8.9	0.0-0.5	.28	.28			
	17-33	35-40	1.25-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.28	.32			
	33-65	27-40	1.25-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.28	.32			
262:												
Poall	0-8	18-27	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	8-17	40-50	1.25-1.35	0.06-0.2	0.12-0.15	6.0-8.9	0.0-0.5	.28	.28			
	17-33	35-40	1.25-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.28	.32			
	33-65	27-40	1.25-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.28	.32			
Gumble	0-3	18-27	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	0.5-1.0	.20	.37	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
263:												
Pomerening	0-4	5-10	1.40-1.60	20-20	0.02-0.05	0.0-2.9	1.0-2.0	.02	.17	5	4	86
	4-9	2-10	1.40-1.60	20-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.15			
	9-62	2-10	1.40-1.60	20-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.15			
264:												
Pomerening	0-4	5-15	1.40-1.60	20-20	0.05-0.08	0.0-2.9	1.0-2.0	.02	.20	5	5	56
	4-9	2-10	1.40-1.60	20-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.15			
	9-62	2-10	1.40-1.60	20-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.15			
Flank	0-1	5-15	1.30-1.50	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.15	.28	1	5	56
	1-9	5-18	1.30-1.50	0.6-6	0.07-0.10	0.0-2.9	0.0-0.5	.15	.28			
	9-19	---	---	---	---	---	---	---	---			
Lava flows	0-60	---	---	---	---	---	---	---	---	---	---	---
265:												
Porterfield	0-6	18-27	1.40-1.50	0.6-2	0.14-0.17	0.0-2.9	0.5-0.9	.28	.28	2	6	48
	6-14	18-30	1.40-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
266:												
Porterfield	0-6	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-0.9	.17	.28	2	8	0
	6-14	18-30	1.40-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
267:												
Porterfield	0-6	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-0.9	.17	.28	2	8	0
	6-14	18-30	1.40-1.50	0.6-2	0.10-0.16	0.0-2.9	0.0-0.5	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
Tincan	0-10	20-27	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.37	2	7	38
	10-16	20-27	1.35-1.45	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.37			
	16-26	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
268:												
Poujade	0-4	10-18	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.43	.43	5	3	86
	4-6	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37			
	6-13	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.32	.32			
	13-40	20-30	1.40-1.50	0.2-0.6	0.06-0.09	3.0-5.9	0.0-0.5	.43	.43			
	40-65	10-30	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.49	.49			
269:												
Poujade	0-4	10-18	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.43	.43	5	3	86
	4-6	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37			
	6-13	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.32	.32			
	13-40	20-30	1.40-1.50	0.2-0.6	0.06-0.09	3.0-5.9	0.0-0.5	.43	.43			
	40-65	10-30	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.49	.49			
270:												
Poujade	0-4	10-18	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	2.0-3.0	.43	.43	5	3	86
	4-6	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.37	.37			
	6-13	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.32	.32			
	13-40	20-30	1.40-1.50	0.2-0.6	0.06-0.09	3.0-5.9	0.0-0.5	.43	.43			
	40-65	10-30	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.49	.49			
Ausmus	0-2	10-20	1.00-1.20	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.37	.37	5	3	86
	2-9	27-35	1.20-1.30	0.2-0.6	0.09-0.12	3.0-5.9	0.5-1.0	.43	.43			
	9-16	27-35	1.20-1.30	0.2-0.6	0.07-0.10	3.0-5.9	0.3-0.7	.43	.43			
	16-29	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.37	.37			
	29-69	20-27	1.00-1.20	0.6-2	0.02-0.05	0.0-2.9	0.0-0.5	.32	.32			
271:												
Raz	0-2	10-20	1.25-1.35	2-6	0.09-0.12	0.0-2.9	1.0-2.0	.20	.32	1	4	86
	2-7	20-35	1.20-1.30	0.2-0.6	0.15-0.19	3.0-5.9	0.5-1.0	.24	.32			
	7-12	20-35	1.20-1.30	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.32	.32			
	12-23	---	---	---	0.00-0.00	---	---	---	---			
	23-33	---	---	---	---	---	---	---	---			
272:												
Raz	0-2	20-27	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	2-7	20-35	1.20-1.30	0.2-0.6	0.15-0.19	3.0-5.9	0.5-1.0	.24	.32			
	7-12	20-35	1.20-1.30	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.32	.32			
	12-23	---	---	---	0.00-0.00	---	---	---	---			
	23-33	---	---	---	---	---	---	---	---			
Brace	0-6	15-27	1.40-1.50	0.6-2	0.11-0.12	0.0-2.9	0.5-1.0	.17	.28	2	7	38
	6-13	20-35	1.30-1.70	0.2-2	0.12-0.21	3.0-5.9	0.0-0.5	.28	.28			
	13-32	15-25	1.35-1.60	0.6-6	0.09-0.17	0.0-2.9	0.0-0.5	.28	.28			
	32-36	---	---	---	---	---	---	---	---			
	36-46	---	---	---	---	---	---	---	---			
273:												
Raz	0-2	20-27	1.20-1.30	0.6-2	0.10-0.13	0.0-2.9	1.0-2.0	.15	.28	1	8	0
	2-7	20-35	1.20-1.30	0.2-0.6	0.15-0.19	3.0-5.9	0.5-1.0	.24	.32			
	7-12	20-35	1.20-1.30	0.2-0.6	0.15-0.21	3.0-5.9	0.0-0.5	.32	.32			
	12-23	---	---	---	0.00-0.00	---	---	---	---			
	23-33	---	---	---	---	---	---	---	---			
Brace	0-6	15-27	1.40-1.50	0.6-2	0.11-0.12	0.0-2.9	0.5-1.0	.17	.28	2	7	38
	6-13	20-35	1.30-1.70	0.2-2	0.12-0.21	3.0-5.9	0.0-0.5	.28	.28			
	13-32	15-25	1.35-1.60	0.6-6	0.09-0.17	0.0-2.9	0.0-0.5	.28	.28			
	32-36	---	---	---	---	---	---	---	---			
	36-46	---	---	---	---	---	---	---	---			
274:												
Reallis	0-9	5-15	1.35-1.45	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-17	5-15	1.35-1.45	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.37	.37			
	17-27	5-15	1.50-1.60	0.2-0.6	0.07-0.09	0.0-2.9	0.0-0.5	.24	.24			
	27-60	2-15	1.40-1.50	0.6-2	0.04-0.11	0.0-2.9	0.0-0.5	.20	.24			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
275:												
Reallis	0-9	5-15	1.35-1.45	0.6-2	0.10-0.12	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	9-17	5-15	1.35-1.45	0.6-2	0.10-0.12	0.0-2.9	0.5-1.0	.37	.37			
	17-27	5-15	1.50-1.60	0.2-0.6	0.07-0.09	0.0-2.9	0.0-0.5	.24	.24			
	27-60	2-15	1.40-1.50	0.6-2	0.04-0.11	0.0-2.9	0.0-0.5	.20	.24			
276:												
Reese	0-4	20-27	1.30-1.45	0.2-0.6	0.01-0.03	0.0-2.9	1.0-3.0	.32	.32	5	4	86
	4-10	20-27	1.30-1.45	0.2-0.6	0.01-0.03	0.0-2.9	0.5-1.0	.32	.32			
	10-33	20-30	1.30-1.50	0.06-0.2	0.01-0.03	3.0-5.9	0.0-0.5	.32	.32			
	33-44	10-27	1.40-1.55	0.6-2	0.03-0.06	0.0-2.9	0.0-0.5	.28	.28			
	44-60	20-27	1.40-1.55	0.2-0.6	0.05-0.08	0.0-2.9	0.0-0.5	.32	.32			
277:												
Reluctan	0-2	15-25	1.30-1.40	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28	2	6	48
	2-9	15-25	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.32			
	9-26	25-35	1.40-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-36	---	---	---	---	---	---	---	---			
278:												
Reluctan	0-2	15-25	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.43	2	8	0
	2-9	15-25	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.24	.28			
	9-15	25-35	1.40-1.50	0.2-0.6	0.14-0.17	3.0-5.9	1.0-2.0	.28	.32			
	15-26	25-35	1.40-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.5-1.0	.28	.32			
	26-36	---	---	---	---	---	---	---	---			
279:												
Riddleranch	0-7	15-20	1.20-1.30	2-6	0.05-0.09	0.0-2.9	1.0-3.0	.17	.32	2	5	56
	7-16	18-35	1.20-1.35	0.6-2	0.07-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-27	18-35	1.25-1.45	0.6-2	0.05-0.08	0.0-2.9	0.0-1.0	.10	.37			
	27-37	---	---	---	---	---	---	---	---			
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
280:												
Riddleranch	0-7	15-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.17	.32	2	8	0
	7-16	18-35	1.20-1.35	0.6-2	0.07-0.12	0.0-2.9	1.0-2.0	.10	.37			
	16-27	18-35	1.25-1.45	0.6-2	0.05-0.08	0.0-2.9	0.0-1.0	.10	.37			
	27-37	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
281:												
Rinconflat	0-4	15-27	1.30-1.50	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.24	.32	5	7	38
	4-13	18-27	1.30-1.50	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.24	.32			
	13-29	18-27	1.40-1.50	0.6-2	0.08-0.11	0.0-2.9	0.0-0.5	.20	.37			
	29-61	10-27	1.40-1.50	0.6-2	0.06-0.10	0.0-2.9	0.0-0.5	.20	.32			
282:												
Rio King	0-4	10-18	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.24	.24	5	5	56
	4-17	10-18	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.24	.24			
	17-27	10-18	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	27-45	10-18	1.40-1.50	0.6-2	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32			
	45-64	10-18	1.40-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.32	.32			
283:												
Rio King	0-4	10-18	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.24	.24	5	5	56
	4-17	10-18	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.24	.24			
	17-27	10-18	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.28	.28			
	27-45	10-18	1.40-1.50	0.6-2	0.14-0.17	0.0-2.9	0.5-1.0	.32	.32			
	45-64	10-18	1.40-1.50	2-6	0.12-0.15	0.0-2.9	0.5-1.0	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
283:												
Droval	0-4	15-25	1.30-1.40	0.6-2	0.09-0.11	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	4-22	40-50	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.1-0.5	.24	.24			
	22-32	50-60	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.0-0.5	.28	.28			
	32-61	40-55	1.30-1.35	0.06-0.2	0.01-0.20	6.0-8.9	0.0-0.5	.28	.28			
284:												
Risley	0-3	18-27	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	3	7	38
	3-25	35-55	1.40-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	25-37	27-40	1.30-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.24	.32			
	37-39	27-40	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.20	.32			
	39-49	---	---	---	---	---	---	---	---			
Gumble	0-3	18-27	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	0.5-1.0	.20	.37	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
285:												
Risley	0-3	27-30	1.30-1.40	0.2-0.6	0.16-0.19	3.0-5.9	1.0-2.0	.32	.32	3	7	38
	3-25	35-55	1.40-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	25-37	27-40	1.30-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.24	.32			
	37-39	27-40	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.20	.32			
	39-49	---	---	---	---	---	---	---	---			
Gumble	0-3	18-27	1.35-1.45	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.17	.32	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
Torriorthents	0-7	---	---	---	---	---	---	---	---	2	---	---
	7-17	---	---	---	---	---	---	---	---			
286:												
Risley	0-3	18-27	1.30-1.40	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	3	8	0
	3-25	35-55	1.40-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	25-37	27-40	1.30-1.50	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.24	.32			
	37-39	27-40	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.20	.32			
	39-49	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
287:												
Robson	0-4	27-35	1.30-1.50	0.2-0.6	0.11-0.14	3.0-5.9	1.0-2.0	.20	.28	1	7	38
	4-13	40-50	1.40-1.50	0.06-0.2	0.05-0.08	6.0-8.9	0.5-1.0	.10	.32			
	13-23	---	---	---	---	---	---	---	---			
Anawalt	0-2	20-27	1.30-1.50	0.6-2	0.10-0.15	0.0-2.9	1.0-2.0	.32	.37	1	7	38
	2-11	20-35	1.30-1.50	0.6-2	0.14-0.19	3.0-5.9	0.0-0.5	.37	.37			
	11-16	40-60	1.30-1.50	0.06-0.2	0.10-0.16	6.0-8.9	0.0-0.5	.24	.32			
	16-26	---	---	---	---	---	---	---	---			
288:												
Robson	0-4	27-35	1.30-1.50	0.2-0.6	0.09-0.12	3.0-5.9	1.0-2.0	.15	.28	1	8	0
	4-13	40-50	1.40-1.50	0.06-0.2	0.05-0.08	6.0-8.9	0.5-1.0	.10	.32			
	13-23	---	---	---	---	---	---	---	---			
Fourwheel	0-7	27-35	1.30-1.50	0.2-0.6	0.16-0.19	3.0-5.9	0.5-1.0	.32	.32	2	6	48
	7-22	45-60	1.30-1.50	0.0015-0.06	0.12-0.16	6.0-8.9	0.0-0.5	.28	.28			
	22-32	---	---	---	---	---	---	---	---			
289:												
Robson	0-4	27-35	1.30-1.50	0.2-0.6	0.09-0.12	3.0-5.9	1.0-2.0	.15	.28	1	8	0
	4-13	40-50	1.40-1.50	0.06-0.2	0.05-0.08	6.0-8.9	0.5-1.0	.10	.32			
	13-23	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
289:												
Felcher	0-10	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.15	.32	2	8	0
	10-22	20-35	1.20-1.30	0.2-0.6	0.12-0.15	3.0-5.9	0.5-1.0	.10	.37			
	22-32	---	---	---	---	---	---	---	---			
290:												
Roca	0-8	27-35	1.30-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.17	.32	2	8	0
	8-16	35-50	1.30-1.50	0.06-0.2	0.07-0.10	6.0-8.9	0.0-0.5	.15	.28			
	16-22	30-50	1.30-1.50	0.06-0.2	0.07-0.10	6.0-8.9	0.0-0.5	.15	.28			
	22-32	---	---	---	---	---	---	---	---			
291:												
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
292:												
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
Baconcamp	0-4	18-27	1.20-1.30	0.6-2	0.07-0.10	0.0-2.9	3.0-8.0	.10	.20	2	8	0
	4-20	18-27	1.25-1.35	0.6-2	0.07-0.13	0.0-2.9	1.0-4.0	.20	.24			
	20-35	18-30	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.28			
	35-45	---	---	---	---	---	---	---	---			
293:												
Royst	0-3	18-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.17	.28	2	8	0
	3-7	18-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28			
	7-14	35-45	1.30-1.50	0.06-0.2	0.09-0.12	6.0-8.9	1.0-2.0	.15	.32			
	14-22	35-45	1.30-1.50	0.06-0.2	0.09-0.12	6.0-8.9	1.0-2.0	.15	.32			
	22-23	---	---	---	---	---	---	---	---			
	23-33	---	---	---	---	---	---	---	---			
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
294:												
Rubble land	0-60	---	---	---	---	---	---	---	---	---	---	---
Nuss	0-4	18-27	1.20-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-2.0	.20	.28	1	7	38
	4-12	18-30	1.20-1.40	0.6-2	0.11-0.15	0.0-2.9	1.0-2.0	.20	.28			
	12-15	18-30	1.25-1.45	0.6-2	0.11-0.15	0.0-2.9	0.5-2.0	.24	.32			
	15-25	---	---	---	---	---	---	---	---			
Ateron	0-5	20-27	1.20-1.30	0.6-2	0.05-0.08	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
295:												
Sagehen	0-10	27-35	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	0.5-1.0	.24	.32	1	7	38
	10-19	25-35	1.30-1.50	0.2-0.6	0.08-0.13	3.0-5.9	0.0-0.5	.20	.37			
	19-29	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
296:												
Sagehen	0-10	27-35	1.30-1.50	0.2-0.6	0.13-0.16	3.0-5.9	0.5-1.0	.24	.32	1	7	38
	10-19	25-35	1.30-1.50	0.2-0.6	0.08-0.13	3.0-5.9	0.0-0.5	.20	.37			
	19-29	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
297:												
Sandgap	0-2	2-5	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	180
	2-19	2-10	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	19-30	2-10	1.50-1.65	0.6-2	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
	30-45	2-10	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	45-60	5-15	1.45-1.55	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.15	.15			
298:												
Sandgap	0-2	2-5	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	180
	2-19	2-10	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	19-30	2-10	1.50-1.65	0.6-2	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
	30-45	2-10	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	45-60	5-15	1.45-1.55	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.15	.15			
299:												
Seharney	0-2	18-27	1.30-1.50	0.6-2	0.13-0.16	0.0-2.9	0.5-1.0	.32	.49	1	7	38
	2-5	18-27	1.30-1.50	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.49	.49			
	5-11	18-27	1.30-1.50	0.6-2	0.13-0.16	0.0-2.9	0.0-0.5	.28	.49			
	11-17	18-27	1.30-1.50	0.6-2	0.10-0.13	0.0-2.9	0.0-0.5	.24	.49			
	17-24	---	---	---	---	---	---	---	---			
	24-34	---	---	---	---	---	---	---	---			
300:												
Skedaddle	0-3	27-30	1.35-1.55	0.6-2	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32	1	8	0
	3-8	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	8-11	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	11-21	---	---	---	---	---	---	---	---			
Atlow	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
301:												
Skedaddle	0-3	27-30	1.35-1.55	0.6-2	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32	1	8	0
	3-8	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	8-11	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	11-21	---	---	---	---	---	---	---	---			
Atlow	0-3	20-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.10	.32	1	8	0
	3-11	27-35	1.40-1.50	0.2-0.6	0.08-0.11	3.0-5.9	0.5-2.0	.10	.32			
	11-21	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
302:												
Skedaddle	0-3	27-30	1.35-1.55	0.6-2	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32	1	8	0
	3-8	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	8-11	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	11-21	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
303:												
Skedaddle, south slopes	0-3	18-20	1.50-1.60	0.6-2	0.05-0.08	0.0-2.9	0.5-1.0	.10	.24	1	4	86
	3-8	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	8-11	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	11-21	---	---	---	---	---	---	---	---			
Skedaddle, north slopes	0-3	27-30	1.35-1.55	0.6-2	0.09-0.12	3.0-5.9	0.5-1.0	.10	.32	1	8	0
	3-8	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	8-11	20-30	1.40-1.55	0.6-2	0.07-0.12	3.0-5.9	0.0-0.5	.10	.37			
	11-21	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
304:												
Skidoosprings---------	0-11	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	11-23	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	23-30	10-18	1.55-1.70	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	30-41	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	41-49	---	---	---	0.00-0.00	---	---	---	---			
	49-60	5-15	1.55-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.28	.28			
305:												
Skidoosprings---------	0-11	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	11-23	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	23-30	10-18	1.55-1.70	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	30-41	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	41-49	---	---	---	0.00-0.00	---	---	---	---			
	49-60	5-15	1.55-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.28	.28			
306:												
Skunkfarm----------	0-2	15-25	1.20-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	2-13	27-35	1.40-1.50	0.2-0.6	0.17-0.20	3.0-5.9	1.0-2.0	.37	.37			
	13-18	25-35	1.30-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	18-29	15-30	1.35-1.50	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	29-60	10-15	1.55-1.60	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.32	.32			
Cumulic Haploxerolls--	0-25	10-25	1.20-1.40	0.6-2	0.15-0.20	0.0-2.9	2.0-3.0	.32	.37	5	6	48
	25-60	---	---	---	---	---	---	---	---			
307:												
Skunkfarm----------	0-2	15-25	1.20-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	2-13	27-35	1.40-1.50	0.2-0.6	0.17-0.20	3.0-5.9	1.0-2.0	.37	.37			
	13-18	25-35	1.30-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	18-29	15-30	1.35-1.50	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	29-60	10-15	1.55-1.60	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.32	.32			
Doubleo----------	0-3	18-27	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	4.0-8.0	.20	.20	5	6	48
	3-10	35-50	1.30-1.40	0.0015-0.06	0.14-0.16	6.0-8.9	2.0-5.0	.24	.24			
	10-20	40-60	1.30-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	1.0-2.0	.24	.24			
	20-28	35-40	1.30-1.35	0.2-0.6	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28			
	28-45	5-15	1.40-1.45	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.43	.43			
	45-60	15-20	1.35-1.40	0.6-2	0.15-0.17	0.0-2.9	0.2-1.0	.55	.55			
308:												
Skunkfarm----------	0-2	15-25	1.20-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	2-13	27-35	1.40-1.50	0.2-0.6	0.17-0.20	3.0-5.9	1.0-2.0	.37	.37			
	13-18	25-35	1.30-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	18-29	15-30	1.35-1.50	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	29-60	10-15	1.55-1.60	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.32	.32			
Mcbain----------	0-5	10-20	1.20-1.30	0.6-2	0.05-0.08	0.0-2.9	2.0-4.0	.43	.43	5	4L	86
	5-22	18-25	1.35-1.55	0.6-2	0.05-0.08	3.0-5.9	1.0-2.0	.43	.43			
	22-27	27-35	1.30-1.50	0.2-0.6	0.05-0.08	3.0-5.9	1.0-2.0	.32	.32			
	27-37	10-18	1.40-1.55	0.6-2	0.12-0.16	0.0-2.9	0.0-0.5	.55	.55			
	37-43	27-30	1.35-1.45	0.2-0.6	0.17-0.20	3.0-5.9	0.0-0.5	.43	.43			
	43-60	15-27	1.35-1.45	0.6-2	0.14-0.17	3.0-5.9	0.0-0.5	.43	.43			
Doubleo----------	0-3	18-27	1.20-1.30	0.6-2	0.14-0.17	0.0-2.9	4.0-8.0	.20	.20	5	6	48
	3-10	35-50	1.30-1.40	0.0015-0.06	0.14-0.16	6.0-8.9	2.0-5.0	.24	.24			
	10-20	40-60	1.30-1.40	0.0015-0.06	0.13-0.16	6.0-8.9	1.0-2.0	.24	.24			
	20-28	35-40	1.30-1.35	0.2-0.6	0.18-0.20	3.0-5.9	1.0-2.0	.28	.28			
	28-45	5-15	1.40-1.45	2-6	0.12-0.14	0.0-2.9	0.5-1.0	.43	.43			
	45-60	15-20	1.35-1.40	0.6-2	0.15-0.17	0.0-2.9	0.2-1.0	.55	.55			
309:												
Skunkfarm----------	0-2	15-25	1.20-1.30	0.6-2	0.17-0.20	0.0-2.9	2.0-4.0	.37	.37	5	5	56
	2-13	27-35	1.40-1.50	0.2-0.6	0.17-0.20	3.0-5.9	1.0-2.0	.37	.37			
	13-18	25-35	1.30-1.35	0.2-0.6	0.17-0.19	3.0-5.9	0.5-1.0	.37	.37			
	18-29	15-30	1.35-1.50	0.6-2	0.15-0.17	0.0-2.9	0.5-1.0	.43	.43			
	29-60	10-15	1.55-1.60	2-6	0.12-0.14	0.0-2.9	0.0-0.5	.32	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
309:												
Skidoosprings---	0-11	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.5-1.0	.32	.32	3	3	86
	11-23	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	23-30	10-18	1.55-1.70	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	30-41	10-18	1.50-1.65	2-6	0.03-0.06	0.0-2.9	0.0-0.5	.32	.32			
	41-49	---	---	---	0.00-0.00	---	---	---	---			
	49-60	5-15	1.55-1.70	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.28	.28			
310:												
Spangenburg---	0-2	27-35	1.20-1.35	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	7	38
	2-15	45-60	1.30-1.45	0.06-0.2	0.15-0.21	6.0-8.9	1.0-2.0	.24	.24			
	15-34	25-40	1.15-1.25	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-60	15-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
311:												
Spangenburg---	0-10	27-35	1.20-1.35	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	7	38
	10-15	45-60	1.30-1.45	0.06-0.2	0.15-0.21	6.0-8.9	1.0-2.0	.24	.24			
	15-34	25-40	1.15-1.25	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-60	15-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
312:												
Spangenburg---	0-10	27-35	1.20-1.35	0.2-0.6	0.19-0.21	3.0-5.9	1.0-2.0	.32	.32	5	7	38
	10-15	45-60	1.30-1.45	0.06-0.2	0.15-0.21	6.0-8.9	1.0-2.0	.24	.24			
	15-34	25-40	1.15-1.25	0.2-0.6	0.19-0.21	3.0-5.9	0.0-0.5	.43	.43			
	34-60	15-25	1.10-1.20	0.6-2	0.16-0.18	0.0-2.9	0.0-0.5	.43	.43			
313:												
Srednic---	0-2	5-15	1.30-1.50	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.05	.20	2	5	56
	2-17	5-18	1.30-1.50	0.6-6	0.10-0.13	0.0-2.9	0.5-1.0	.24	.32			
	17-25	5-18	1.30-1.50	0.6-6	0.10-0.13	0.0-2.9	0.0-0.5	.28	.32			
	25-27	---	---	---	---	---	---	---	---			
	27-30	---	---	---	---	---	---	---	---			
	30-40	---	---	---	---	---	---	---	---			
Aval---	0-2	5-15	1.30-1.50	2-6	0.07-0.10	0.0-2.9	1.0-2.0	.05	.20	1	5	56
	2-18	5-18	1.30-1.50	0.6-6	0.10-0.13	0.0-2.9	0.5-1.0	.24	.28			
	18-28	---	---	---	---	---	---	---	---			
314:												
Stampede---	0-3	20-27	1.30-1.40	0.6-2	0.13-0.16	0.0-2.9	1.0-2.0	.28	.28	2	6	48
	3-11	27-35	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	1.0-2.0	.32	.32			
	11-19	40-50	1.40-1.50	0.0015-0.06	0.12-0.15	6.0-8.9	0.5-1.0	.24	.24			
	19-23	25-30	1.40-1.50	0.2-0.6	0.10-0.13	3.0-5.9	0.0-0.5	.15	.28			
	23-33	---	---	---	0.00-0.00	---	---	---	---			
	33-60	10-20	1.50-1.60	2-6	0.00-0.00	0.0-2.9	0.0-0.0	.15	.32			
315:												
Swaler---	0-10	15-25	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	10-27	35-50	1.30-1.40	0.0015-0.06	0.16-0.21	6.0-8.9	0.0-0.5	.28	.28			
	27-60	30-40	1.30-1.40	0.0015-0.06	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
316:												
Swaler---	0-10	15-25	1.30-1.40	0.6-2	0.19-0.21	0.0-2.9	1.0-2.0	.37	.37	5	6	48
	10-27	35-50	1.30-1.40	0.0015-0.06	0.16-0.21	6.0-8.9	0.0-0.5	.28	.28			
	27-60	30-40	1.30-1.40	0.0015-0.06	0.19-0.21	3.0-5.9	0.0-0.5	.32	.32			
Swalesilver---	0-6	15-25	1.10-1.20	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	4	86
	6-23	45-65	1.30-1.40	0.0015-0.06	0.13-0.15	6.0-8.9	1.0-2.0	.17	.17			
	23-61	15-30	1.20-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
317:												
Swalesilver---	0-6	15-25	1.10-1.20	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	4	86
	6-23	45-65	1.30-1.40	0.0015-0.06	0.13-0.15	6.0-8.9	1.0-2.0	.17	.17			
	23-61	15-30	1.20-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
318:												
Swalesilver----------	0-6	15-25	1.10-1.20	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	4	86
	6-23	45-65	1.30-1.40	0.0015-0.06	0.13-0.15	6.0-8.9	1.0-2.0	.17	.17			
	23-61	15-30	1.20-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
319:												
Swalesilver----------	0-6	15-25	1.10-1.20	0.6-2	0.15-0.17	0.0-2.9	1.0-2.0	.43	.43	5	4	86
	6-23	45-65	1.30-1.40	0.0015-0.06	0.13-0.15	6.0-8.9	1.0-2.0	.17	.17			
	23-61	15-30	1.20-1.30	0.2-0.6	0.15-0.18	0.0-2.9	0.0-0.5	.28	.28			
320:												
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	2.0-4.0	.24	.28	1	7	38
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
321:												
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
322:												
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
323:												
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
Anatone, moist--------	0-8	18-27	1.30-1.50	0.6-2	0.06-0.08	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	8-14	18-30	1.40-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-2.0	.15	.28			
	14-24	---	---	---	---	---	---	---	---			
324:												
Teguro----------	0-2	18-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	1	8	0
	2-5	18-27	1.30-1.50	0.2-0.6	0.10-0.16	0.0-2.9	2.0-4.0	.20	.28			
	5-14	25-35	1.30-1.50	0.2-0.6	0.10-0.13	3.0-5.9	1.0-2.0	.24	.32			
	14-24	---	---	---	---	---	---	---	---			
Ateron----------	0-5	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	1.0-2.0	.17	.28	1	8	0
	5-12	27-35	1.25-1.35	0.2-0.6	0.08-0.11	3.0-5.9	1.0-2.0	.20	.32			
	12-18	40-50	1.35-1.50	0.06-0.2	0.05-0.10	6.0-8.9	0.5-1.0	.10	.28			
	18-28	---	---	---	---	---	---	---	---			
325:												
Thenarrows----------	0-3	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	3-14	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32			
	14-22	5-18	1.35-1.65	2-20	0.06-0.09	0.0-2.9	0.0-0.5	.28	.28			
	22-31	10-18	1.45-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.32	.32			
	31-54	5-18	1.35-1.65	2-20	0.05-0.10	0.0-2.9	0.0-0.5	.28	.28			
	54-60	5-10	1.45-1.65	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.28	.28			
Duckclub----------	0-5	5-8	1.35-1.55	6-20	0.04-0.07	0.0-2.9	1.0-2.0	.37	.37	5	2	134
	5-27	5-8	1.35-1.55	6-20	0.04-0.07	0.0-2.9	0.3-1.0	.37	.37			
	27-32	10-18	1.35-1.55	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.32	.32			
	32-41	15-30	1.45-1.60	0.2-0.6	0.07-0.11	0.0-2.9	0.0-0.5	.28	.28			
	41-63	5-20	1.45-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.28	.28			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
326:												
Thenarrows----------	0-3	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	3-14	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32			
	14-22	5-18	1.35-1.65	2-20	0.06-0.09	0.0-2.9	0.0-0.5	.28	.28			
	22-31	10-18	1.45-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.32	.32			
	31-54	5-18	1.35-1.65	2-20	0.05-0.10	0.0-2.9	0.0-0.5	.28	.28			
	54-60	5-10	1.45-1.65	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.28	.28			
Duckclub----------	0-5	5-8	1.35-1.55	6-20	0.04-0.07	0.0-2.9	1.0-2.0	.37	.37	5	2	134
	5-27	5-8	1.35-1.55	6-20	0.04-0.07	0.0-2.9	0.3-1.0	.37	.37			
	27-32	10-18	1.35-1.55	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.32	.32			
	32-41	15-30	1.45-1.60	0.2-0.6	0.07-0.11	0.0-2.9	0.0-0.5	.28	.28			
	41-63	5-20	1.45-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.28	.28			
Dentdraw----------	0-6	10-20	1.30-1.50	0.6-2	0.11-0.13	0.0-2.9	1.0-2.0	.32	.32	5	4L	86
	6-9	10-18	1.30-1.50	2-6	0.08-0.11	0.0-2.9	1.0-2.0	.32	.32			
	9-18	10-20	1.30-1.50	0.6-2	0.08-0.13	0.0-2.9	0.5-1.0	.32	.32			
	18-27	20-30	1.35-1.55	0.2-0.6	0.11-0.14	3.0-5.9	0.0-0.5	.28	.28			
	27-42	10-18	1.40-1.60	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.32	.32			
	42-60	5-10	1.40-1.60	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.28	.28			
327:												
Thenarrows----------	0-3	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32	5	3	86
	3-14	10-18	1.35-1.55	2-6	0.06-0.09	0.0-2.9	1.0-2.0	.32	.32			
	14-22	5-18	1.35-1.65	2-20	0.06-0.09	0.0-2.9	0.0-0.5	.28	.28			
	22-31	10-18	1.45-1.60	2-6	0.08-0.10	0.0-2.9	0.0-0.5	.32	.32			
	31-54	5-18	1.35-1.65	2-20	0.05-0.10	0.0-2.9	0.0-0.5	.28	.28			
	54-60	5-10	1.45-1.65	6-20	0.05-0.07	0.0-2.9	0.0-0.5	.28	.28			
Duckclub----------	0-5	5-8	1.35-1.55	6-20	0.04-0.07	0.0-2.9	1.0-2.0	.37	.37	5	2	134
	5-27	5-8	1.35-1.55	6-20	0.04-0.07	0.0-2.9	0.3-1.0	.37	.37			
	27-32	10-18	1.35-1.55	2-6	0.07-0.10	0.0-2.9	0.0-0.5	.32	.32			
	32-41	15-30	1.45-1.60	0.2-0.6	0.07-0.11	0.0-2.9	0.0-0.5	.28	.28			
	41-63	5-20	1.45-1.60	0.2-0.6	0.04-0.07	0.0-2.9	0.0-0.5	.28	.28			
Sandgap----------	0-2	2-5	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.5-1.0	.10	.10	5	1	180
	2-19	2-10	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	19-30	2-10	1.50-1.65	0.6-2	0.04-0.07	0.0-2.9	0.0-0.5	.15	.15			
	30-45	2-10	1.45-1.60	6-20	0.06-0.08	0.0-2.9	0.0-0.5	.15	.15			
	45-60	5-15	1.45-1.55	2-6	0.06-0.10	0.0-2.9	0.0-0.5	.15	.15			
328:												
Ticino----------	0-9	18-27	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-4.0	.24	.28	2	7	38
	9-26	25-35	1.35-1.50	0.6-2	0.10-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-29	---	---	---	---	---	---	---	---			
	29-39	---	---	---	---	---	---	---	---			
Merlin----------	0-7	20-27	1.20-1.30	0.6-2	0.11-0.14	0.0-2.9	2.0-4.0	.20	.28	1	7	38
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
329:												
Ticino----------	0-9	18-27	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-4.0	.24	.28	2	7	38
	9-26	25-35	1.35-1.50	0.6-2	0.10-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-29	---	---	---	---	---	---	---	---			
	29-39	---	---	---	---	---	---	---	---			
Observation----------	0-4	18-27	1.40-1.50	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.24	.28	2	7	38
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
330:												
Ticino	0-9	18-27	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	1.0-4.0	.24	.28	2	7	38
	9-26	25-35	1.35-1.50	0.6-2	0.10-0.17	3.0-5.9	0.5-2.0	.28	.32			
	26-29	---	---	---	---	---	---	---	---			
	29-39	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
331:												
Toll	0-5	2-5	1.50-1.60	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.20	.20	5	1	180
	5-13	2-8	1.50-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.20	.20			
	13-60	2-8	1.50-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.20	.20			
332:												
Toll	0-5	2-5	1.50-1.60	6-20	0.04-0.06	0.0-2.9	0.0-0.5	.20	.20	5	1	180
	5-13	2-8	1.50-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.20	.20			
	13-60	2-8	1.50-1.60	6-20	0.04-0.08	0.0-2.9	0.0-0.5	.20	.20			
Nevador	0-3	10-15	1.40-1.50	2-6	0.09-0.11	0.0-2.9	1.0-2.0	.24	.24	5	3	86
	3-7	15-25	1.30-1.40	0.6-2	0.12-0.15	0.0-2.9	1.0-2.0	.28	.28			
	7-18	27-35	1.30-1.50	0.2-0.6	0.15-0.17	3.0-5.9	0.5-1.0	.32	.32			
	18-32	8-15	1.45-1.65	0.2-0.6	0.07-0.11	0.0-2.9	0.0-0.5	.28	.28			
	32-62	5-15	1.30-1.40	2-6	0.07-0.11	0.0-2.9	0.0-0.5	.24	.28			
333:												
Torriorthents	0-7	---	---	---	---	---	---	---	---	2	---	---
	7-17	---	---	---	---	---	---	---	---			
Gumble	0-3	18-27	1.25-1.35	0.6-2	0.08-0.11	0.0-2.9	0.5-1.0	.20	.37	2	8	0
	3-8	18-27	1.35-1.45	0.6-2	0.13-0.15	0.0-2.9	0.5-1.0	.32	.32			
	8-14	35-50	1.30-1.45	0.06-0.6	0.10-0.17	6.0-8.9	0.0-0.5	.24	.28			
	14-16	30-40	1.30-1.45	0.2-0.6	0.13-0.17	3.0-5.9	0.0-0.5	.37	.37			
	16-26	---	---	---	---	---	---	---	---			
334:												
Tumtum	0-2	20-27	1.40-1.45	0.6-2	0.13-0.15	0.0-2.9	0.3-0.5	.24	.32	1	7	38
	2-12	27-35	1.30-1.40	0.06-0.2	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	12-25	---	---	---	0.00-0.00	---	---	---	---			
	25-60	5-15	1.45-1.50	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.15	.28			
335:												
Tumtum	0-2	20-27	1.40-1.45	0.6-2	0.13-0.15	0.0-2.9	0.3-0.5	.24	.32	1	7	38
	2-12	27-35	1.30-1.40	0.06-0.2	0.14-0.20	3.0-5.9	0.0-0.5	.32	.32			
	12-25	---	---	---	0.00-0.00	---	---	---	---			
	25-60	5-15	1.45-1.50	6-20	0.00-0.00	0.0-2.9	0.0-0.5	.15	.28			
336:												
Turpin	0-4	20-30	1.20-1.30	0.2-0.6	0.07-0.12	3.0-5.9	0.5-1.0	.32	.32	5	5	56
	4-8	15-25	1.20-1.30	0.6-2	0.08-0.10	0.0-2.9	0.5-1.0	.43	.43			
	8-13	20-35	1.30-1.45	0.2-0.6	0.07-0.10	3.0-5.9	0.2-0.5	.37	.37			
	13-38	20-35	1.30-1.45	0.06-0.2	0.07-0.10	3.0-5.9	0.0-0.5	.37	.37			
	38-48	20-35	1.30-1.45	0.06-0.2	0.07-0.10	3.0-5.9	0.0-0.5	.37	.37			
	48-60	20-35	1.30-1.45	0.06-0.2	0.07-0.10	3.0-5.9	0.0-0.5	.37	.37			
337:												
Vanwyper	0-3	30-40	1.30-1.50	0.2-0.6	0.04-0.07	3.0-5.9	0.5-1.0	.10	.32	2	8	0
	3-15	40-55	1.30-1.50	0.06-0.2	0.07-0.13	6.0-8.9	0.0-0.5	.15	.28			
	15-24	30-40	1.30-1.50	0.2-0.6	0.07-0.10	3.0-5.9	0.0-0.5	.15	.28			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
338:												
Vergas	0-6	20-27	1.30-1.40	0.6-2	0.11-0.14	0.0-2.9	0.5-1.0	.28	.32	5	7	38
	6-14	20-35	1.40-1.50	0.2-0.6	0.11-0.16	3.0-5.9	0.0-0.5	.24	.32			
	14-20	5-10	1.45-1.60	0.06-0.2	0.04-0.07	0.0-2.9	0.0-0.5	.05	.17			
	20-62	2-10	1.45-1.60	20-20	0.01-0.04	0.0-2.9	0.0-0.5	.02	.15			
339:												
Vil	0-6	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-2.0	.37	.37	1	5	56
	6-9	15-20	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.37	.37			
	9-13	20-30	1.30-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
	13-16	20-30	1.30-1.40	0.2-0.6	0.12-0.17	3.0-5.9	0.0-0.5	.28	.32			
	16-37	---	---	---	0.00-0.00	---	---	---	---			
	37-60	10-15	1.40-1.50	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.32			
340:												
Vining	0-2	10-20	1.30-1.40	2-6	0.14-0.17	0.0-2.9	0.5-1.0	.28	.28	2	5	56
	2-13	10-18	1.30-1.40	2-6	0.09-0.15	0.0-2.9	0.3-0.8	.28	.28			
	13-29	10-18	1.30-1.40	2-6	0.09-0.15	0.0-2.9	0.0-0.5	.28	.28			
	29-39	---	---	---	---	---	---	---	---			
341:												
Vining	0-2	5-10	1.50-1.60	6-20	0.05-0.08	0.0-2.9	0.5-1.0	.17	.17	2	2	134
	2-13	10-18	1.30-1.40	2-6	0.09-0.15	0.0-2.9	0.3-0.8	.28	.28			
	13-29	10-18	1.30-1.40	2-6	0.09-0.15	0.0-2.9	0.0-0.5	.28	.28			
	29-39	---	---	---	---	---	---	---	---			
Tuffo	0-2	5-15	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.37	.37	2	3	86
	2-7	5-15	1.30-1.50	2-6	0.12-0.15	0.0-2.9	0.0-0.5	.37	.37			
	7-17	---	---	---	---	---	---	---	---			
342:												
Vitale	0-3	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	2	8	0
	3-12	18-27	1.40-1.50	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	12-26	20-35	1.45-1.60	0.2-0.6	0.07-0.10	3.0-5.9	0.5-1.0	.15	.32			
	26-36	---	---	---	---	---	---	---	---			
343:												
Vitale	0-3	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	2	8	0
	3-12	18-27	1.40-1.50	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	12-26	20-35	1.45-1.60	0.2-0.6	0.07-0.10	3.0-5.9	0.5-1.0	.15	.32			
	26-36	---	---	---	---	---	---	---	---			
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
344:												
Vitale	0-3	18-27	1.40-1.50	0.6-2	0.10-0.13	0.0-2.9	2.0-4.0	.20	.28	2	7	38
	3-12	18-27	1.40-1.50	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	12-26	20-35	1.45-1.60	0.2-0.6	0.07-0.10	3.0-5.9	0.5-1.0	.15	.32			
	26-36	---	---	---	---	---	---	---	---			
Merlin	0-7	20-27	1.20-1.30	0.6-2	0.08-0.11	0.0-2.9	2.0-4.0	.15	.28	1	8	0
	7-12	30-40	1.30-1.40	0.2-0.6	0.15-0.18	3.0-5.9	0.5-2.0	.24	.32			
	12-18	50-70	1.30-1.45	0.0015-0.06	0.11-0.14	6.0-8.9	0.5-1.0	.20	.28			
	18-29	---	---	---	---	---	---	---	---			
Doyn	0-2	18-27	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-3.0	.15	.28	1	8	0
	2-8	20-30	1.30-1.40	0.6-2	0.13-0.18	0.0-2.9	1.0-2.0	.24	.32			
	8-18	---	---	---	---	---	---	---	---			
345:												
Vitale	0-3	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	2	8	0
	3-12	18-27	1.40-1.50	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	12-26	20-35	1.45-1.60	0.2-0.6	0.07-0.10	3.0-5.9	0.5-1.0	.15	.32			
	26-36	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
345:												
Observation	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
346:												
Vitale	0-3	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.10	.28	2	8	0
	3-12	18-27	1.40-1.50	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	12-26	20-35	1.45-1.60	0.2-0.6	0.07-0.10	3.0-5.9	0.5-1.0	.15	.32			
	26-36	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
347:												
Voltage	0-4	10-20	1.40-1.45	0.6-2	0.15-0.21	0.0-2.9	2.0-5.0	.43	.43	5	4L	86
	4-38	10-18	1.40-1.50	0.6-2	0.13-0.21	0.0-2.9	0.5-3.0	.55	.55			
	38-64	5-10	1.40-1.50	0.6-2	0.11-0.21	0.0-2.9	0.0-0.5	.55	.55			
348:												
Voltage	0-4	10-20	1.40-1.45	0.6-2	0.15-0.21	0.0-2.9	2.0-5.0	.43	.43	5	4L	86
	4-38	10-18	1.40-1.50	0.6-2	0.13-0.21	0.0-2.9	0.5-3.0	.55	.55			
	38-64	5-10	1.40-1.50	0.6-2	0.11-0.21	0.0-2.9	0.0-0.5	.55	.55			
Crowcamp	0-3	15-27	1.25-1.35	0.6-2	0.15-0.18	0.0-2.9	4.0-6.0	.32	.32	5	5	56
	3-30	40-55	1.40-1.55	0.06-0.2	0.12-0.16	6.0-8.9	0.5-4.0	.24	.24			
	30-53	18-27	1.40-1.60	0.2-0.6	0.13-0.17	0.0-2.9	0.0-0.5	.24	.28			
	53-68	18-27	1.30-1.45	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28			
349:												
Voltage	0-4	27-30	1.40-1.45	0.6-2	0.15-0.18	3.0-5.9	2.0-5.0	.37	.37	5	4L	86
	4-38	10-18	1.40-1.50	0.6-2	0.13-0.18	0.0-2.9	0.5-3.0	.55	.55			
	38-64	5-10	1.40-1.50	0.6-2	0.13-0.18	0.0-2.9	0.0-0.5	.55	.55			
Crowcamp	0-3	27-30	1.25-1.35	0.2-0.6	0.15-0.18	3.0-5.9	4.0-6.0	.28	.28	5	7	38
	3-30	40-55	1.40-1.55	0.06-0.2	0.12-0.16	6.0-8.9	0.5-4.0	.24	.24			
	30-53	18-27	1.40-1.60	0.2-0.6	0.13-0.17	0.0-2.9	0.0-0.5	.24	.28			
	53-68	18-27	1.30-1.45	0.6-2	0.10-0.15	0.0-2.9	0.0-0.5	.20	.28			
350:												
Voltage	0-4	10-20	1.40-1.45	0.6-2	0.15-0.21	0.0-2.9	2.0-5.0	.43	.43	5	4L	86
	4-38	10-18	1.40-1.50	0.6-2	0.13-0.21	0.0-2.9	0.5-3.0	.55	.55			
	38-64	5-10	1.40-1.50	0.6-2	0.11-0.21	0.0-2.9	0.0-0.5	.55	.55			
Widowspring	0-22	20-25	1.25-1.40	0.6-2	0.20-0.22	0.0-2.9	2.0-5.0	.32	.32	5	5	56
	22-43	20-35	1.30-1.45	0.2-2	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37			
	43-63	20-25	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.2-1.0	.37	.37			
351:												
Wagontire	0-5	27-35	1.35-1.50	0.2-2	0.12-0.18	0.0-2.9	1.0-3.0	.28	.37	1	7	38
	5-15	35-50	1.40-1.55	0.06-0.2	0.11-0.13	3.0-5.9	1.0-2.0	.20	.32			
	15-40	---	---	---	0.00-0.00	---	---	---	---			
	40-60	10-20	1.35-1.50	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.28			
352:												
Wagontire	0-5	27-35	1.35-1.50	0.2-2	0.12-0.18	0.0-2.9	1.0-3.0	.28	.37	1	7	38
	5-15	35-50	1.40-1.55	0.06-0.2	0.11-0.13	3.0-5.9	1.0-2.0	.20	.32			
	15-40	---	---	---	0.00-0.00	---	---	---	---			
	40-60	10-20	1.35-1.50	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.28			
Vil	0-6	10-18	1.30-1.40	0.6-2	0.16-0.19	0.0-2.9	1.0-2.0	.37	.37	1	5	56
	6-9	15-20	1.30-1.40	0.6-2	0.15-0.18	0.0-2.9	1.0-2.0	.37	.37			
	9-13	20-30	1.30-1.40	0.2-0.6	0.14-0.20	3.0-5.9	0.5-1.0	.32	.32			
	13-16	20-30	1.30-1.40	0.2-0.6	0.12-0.17	3.0-5.9	0.0-0.5	.28	.32			
	16-37	---	---	---	0.00-0.00	---	---	---	---			
	37-60	10-15	1.40-1.50	2-6	0.00-0.00	0.0-2.9	0.0-0.5	.15	.32			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
353:												
Waspo	0-3	50-70	1.35-1.40	0.06-0.2	0.14-0.16	6.0-8.9	1.0-2.0	.20	.20	3	4	86
	3-25	60-75	1.35-1.50	0.0015-0.06	0.14-0.17	6.0-8.9	1.0-2.0	.20	.20			
	25-35	---	---	---	---	---	---	---	---			
Poall	0-8	18-27	1.20-1.30	0.6-2	0.15-0.18	0.0-2.9	0.5-1.0	.37	.37	5	6	48
	8-17	40-50	1.25-1.35	0.06-0.2	0.12-0.15	6.0-8.9	0.0-0.5	.28	.28			
	17-33	35-40	1.25-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.28	.32			
	33-65	27-40	1.25-1.40	0.2-0.6	0.14-0.17	3.0-5.9	0.0-0.5	.28	.32			
354:												
Water	---	---	---	---	---	---	---	---	---	---	---	---
355:												
Welch	0-9	15-20	1.25-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	9-60	20-35	1.30-1.45	0.2-0.6	0.16-0.21	3.0-5.9	0.5-3.0	.28	.28			
356:												
Welch	0-9	15-20	1.25-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32	5	6	48
	9-60	20-35	1.30-1.45	0.2-0.6	0.16-0.21	3.0-5.9	0.5-3.0	.28	.28			
357:												
Welch	0-5	15-20	1.25-1.40	0.6-2	0.16-0.18	0.0-2.9	2.0-4.0	.32	.32	5	5	56
	5-60	20-35	1.30-1.45	0.2-0.6	0.16-0.21	3.0-5.9	0.5-3.0	.28	.55			
Roschene	0-5	18-27	1.25-1.40	0.6-2	0.15-0.18	0.0-2.9	2.0-3.0	.24	.24	5	6	48
	5-18	18-27	1.25-1.40	0.6-2	0.14-0.17	0.0-2.9	1.0-3.0	.24	.24			
	18-36	20-35	1.30-1.45	0.2-0.6	0.14-0.18	3.0-5.9	1.0-2.0	.28	.28			
	36-62	20-35	1.30-1.45	0.2-0.6	0.14-0.18	3.0-5.9	0.2-0.9	.32	.32			
Cumulic Haploxerolls	0-25	10-25	1.20-1.40	0.6-2	0.15-0.20	0.0-2.9	2.0-3.0	.32	.37	5	6	48
	25-60	---	---	---	---	---	---	---	---			
358:												
Wenas	0-10	27-35	1.20-1.40	0.2-0.6	0.17-0.20	3.0-5.9	2.0-4.0	.24	.24	5	6	48
	10-21	15-20	1.30-1.40	2-6	0.12-0.15	0.0-2.9	1.0-2.0	.28	.28			
	21-34	18-27	1.30-1.50	0.6-2	0.14-0.17	0.0-2.9	1.0-2.0	.28	.28			
	34-53	18-27	1.30-1.50	0.6-2	0.14-0.17	0.0-2.9	0.5-1.0	.28	.28			
	53-63	18-27	1.30-1.50	0.6-2	0.12-0.15	0.0-2.9	0.0-0.5	.24	.32			
	63-67	5-10	1.40-1.60	6-20	0.02-0.05	0.0-2.9	0.0-0.5	.02	.15			
Loupence	0-2	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	2.0-4.0	.24	.24	5	6	48
	2-24	18-27	1.00-1.20	0.6-2	0.19-0.21	0.0-2.9	1.0-4.0	.24	.24			
	24-49	18-27	1.10-1.20	0.6-2	0.17-0.20	0.0-2.9	1.0-3.0	.28	.28			
	49-60	10-15	1.20-1.40	2-6	0.11-0.14	0.0-2.9	0.5-1.0	.24	.24			
Cumulic Haploxerolls	0-25	10-25	1.20-1.40	0.6-2	0.15-0.20	0.0-2.9	2.0-3.0	.32	.37	5	6	48
	25-60	---	---	---	---	---	---	---	---			
359:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
360:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
361:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Bocker	0-3	18-27	1.30-1.50	0.6-2	0.04-0.07	0.0-2.9	2.0-4.0	.05	.24	1	8	0
	3-7	20-27	1.30-1.50	0.6-2	0.04-0.07	0.0-2.9	1.0-2.0	.10	.28			
	7-17	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
362:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.05-0.08	0.0-2.9	2.0-3.0	.10	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.20-1.40	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.15	.32			
	21-60	15-27	1.30-1.60	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.10	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
363:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
364:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
365:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
366:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
367:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Lambring	0-7	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	5	8	0
	7-12	15-27	1.25-1.45	0.6-2	0.10-0.13	0.0-2.9	1.0-3.0	.20	.28			
	12-21	15-27	1.25-1.45	0.6-2	0.07-0.13	0.0-2.9	1.0-2.0	.17	.32			
	21-60	15-27	1.30-1.50	0.6-2	0.07-0.10	0.0-2.9	0.5-1.0	.15	.32			
Rock outcrop	0-60	---	---	---	---	---	---	---	---	---	---	---
368:												
Westbutte	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			

Table 15.--Physical Properties of the Soils--Continued

Map symbol and soil name	Depth	Clay	Moist bulk density	Permeability (K_{sat})	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
								Kw	Kf	T		
	In	*Pct*	*g/cc*	*In/hr*	*In/in*	*Pct*	*Pct*					
368:												
Observation----------	0-4	18-27	1.40-1.50	0.6-2	0.07-0.10	0.0-2.9	2.0-4.0	.20	.28	2	8	0
	4-8	20-27	1.40-1.50	0.6-2	0.12-0.15	0.0-2.9	1.0-3.0	.24	.32			
	8-23	35-50	1.30-1.50	0.06-0.2	0.13-0.16	6.0-8.9	0.5-1.0	.24	.28			
	23-33	---	---	---	---	---	---	---	---			
369:												
Westbutte----------	0-12	15-27	1.20-1.40	0.6-2	0.07-0.10	0.0-2.9	2.0-3.0	.15	.28	2	8	0
	12-24	18-30	1.30-1.50	0.6-2	0.07-0.11	0.0-2.9	1.0-2.0	.15	.32			
	24-34	---	---	---	---	---	---	---	---			
Rock outcrop----------	0-60	---	---	---	---	---	---	---	---	---	---	---
Pernty----------	0-3	15-20	1.30-1.40	0.6-2	0.07-0.10	0.0-2.9	1.0-2.0	.20	.24	1	4	86
	3-8	20-30	1.30-1.40	0.6-2	0.11-0.15	3.0-5.9	1.0-2.0	.24	.32			
	8-15	25-35	1.35-1.45	0.2-0.6	0.08-0.11	3.0-5.9	0.5-1.0	.20	.32			
	15-25	---	---	---	---	---	---	---	---			
370:												
Widowspring----------	0-22	20-25	1.25-1.40	0.6-2	0.20-0.22	0.0-2.9	2.0-5.0	.32	.32	5	5	56
	22-43	20-35	1.30-1.45	0.2-2	0.19-0.21	0.0-2.9	1.0-3.0	.37	.37			
	43-63	20-25	1.25-1.45	0.6-2	0.16-0.21	0.0-2.9	0.2-1.0	.37	.37			
371:												
Windybutte----------	0-7	15-20	1.20-1.40	0.6-2	0.16-0.22	0.0-2.9	1.0-2.0	.49	.49	5	5	56
	7-13	25-35	1.20-1.40	0.2-0.6	0.18-0.22	3.0-5.9	1.0-2.0	.49	.49			
	13-17	10-20	1.30-1.50	0.2-0.6	0.13-0.18	0.0-2.9	0.0-0.5	.37	.37			
	17-60	10-15	1.30-1.50	0.2-0.6	0.16-0.18	0.0-2.9	0.0-0.5	.37	.37			
372:												
Wolverine----------	0-6	2-5	1.50-1.60	20-20	0.05-0.07	0.0-2.9	0.0-0.5	.55	.55	5	1	220
	6-37	2-5	1.50-1.60	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.20			
	37-51	2-5	1.50-1.60	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.20			
	51-70	2-5	1.60-1.70	20-20	0.04-0.07	0.0-2.9	0.0-0.5	.20	.20			
373:												
Denied access----------	---	---	---	---	---	---	---	---	---	---	---	---

Table 16.--Chemical Properties of the Soils

(Absence of an entry indicates that data were not estimated)

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
1:						
Actem	0-2	15-25	6.6-7.3	0	0	0
	2-7	25-40	6.6-7.8	0	0	0
	7-15	25-40	6.6-7.8	1-3	0	0
	15-20	---	---	---	---	---
	20-30	---	---	---	---	---
2:						
Actem	0-2	15-25	6.6-7.3	0	0	0
	2-7	25-40	6.6-7.8	0	0	0
	7-15	25-40	6.6-7.8	1-3	0	0
	15-20	---	---	---	---	---
	20-30	---	---	---	---	---
3:						
Actem	0-2	15-25	6.6-7.3	0	0	0
	2-7	25-40	6.6-7.8	0	0	0
	7-15	25-40	6.6-7.8	1-3	0	0
	15-20	---	---	---	---	---
	20-30	---	---	---	---	---
Robson	0-4	15-25	6.6-7.3	0	0	0
	4-13	30-45	6.6-7.8	0	0	0
	13-23	---	---	---	---	---
4:						
Alvodest	0-6	20-30	9.1-11.0	5-10	16.0-32.0	800-999
	6-42	25-40	9.1-11.0	5-15	14.0-32.0	70-700
	42-78	20-35	9.1-11.0	5-15	12.0-32.0	70-700
5:						
Alvodest	0-6	20-30	9.1-11.0	5-10	16.0-32.0	800-999
	6-42	25-40	9.1-11.0	5-15	14.0-32.0	70-700
	42-78	20-35	9.1-11.0	5-15	12.0-32.0	70-700
Playas	0-60	---	8.5-11.0	---	16.0-32.0	70-999
6:						
Alyan	0-2	10-20	6.6-7.8	0	0	0
	2-10	15-25	6.6-7.8	0	0	0
	10-17	15-25	6.6-7.8	0	0	0
	17-24	25-35	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
7:						
Anatone	0-5	15-20	6.6-7.3	0	0	0
	5-16	15-20	6.6-7.3	0	0	0
	16-26	---	---	---	---	---
8:						
Anatone, moist	0-5	15-20	6.6-7.3	0	0	0
	5-16	15-20	6.6-7.3	0	0	0
	16-26	---	---	---	---	---
Anatone	0-8	15-20	6.1-7.3	0	0	0
	8-14	15-20	6.1-7.3	0	0	0
	14-24	---	---	---	---	---
9:						
Anatone	0-5	15-20	6.6-7.3	0	0	0
	5-16	15-20	6.6-7.3	0	0	0
	16-26	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
9:						
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
10:						
Anatone, moist	0-8	15-20	6.1-7.3	0	0	0
	8-14	15-20	6.1-7.3	0	0	0
	14-24	---	---	---	---	---
Egyptcreek	0-8	15-25	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-24	10-20	6.1-7.3	0	0	0
	24-34	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
11:						
Anatone, moist	0-5	15-20	6.6-7.3	0	0	0
	5-16	15-20	6.6-7.3	0	0	0
	16-26	---	---	---	---	---
Minam	0-3	20-30	6.6-7.3	0	0	0
	3-29	15-25	6.6-7.3	0	0	0
	29-39	15-25	6.6-7.3	0	0	0
	39-52	10-20	6.6-7.3	0	0	0
	52-62	5.0-15	6.6-7.3	0	0	0
Rock outcrop	0-60	---	---	---	---	---
12:						
Anatone	0-5	15-20	6.6-7.3	0	0	0
	5-16	15-20	6.6-7.3	0	0	0
	16-26	---	---	---	---	---
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
13:						
Anatone	0-5	15-20	6.6-7.3	0	0	0
	5-16	15-20	6.6-7.3	0	0	0
	16-26	---	---	---	---	---
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
14:						
Anawalt	0-2	10-20	6.6-7.8	0	0	0
	2-11	15-25	6.6-7.8	0	0	0
	11-16	25-40	6.6-7.8	0	0	0
	16-26	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
15:						
Anawalt	0-2	10-20	6.6-7.8	0	0	0
	2-11	15-25	6.6-7.8	0	0	0
	11-16	25-40	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Lonely	0-4	15-20	6.6-7.3	0	0	0
	4-16	15-20	6.6-7.8	0	0	0
	16-24	15-20	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
16:						
Anawalt	0-2	10-20	6.6-7.8	0	0	0
	2-11	15-25	6.6-7.8	0	0	0
	11-16	25-40	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Oreneva	0-2	10-15	6.6-7.8	0	0	0
	2-10	10-15	6.6-7.8	0	0	0
	10-21	10-15	7.4-8.4	0	0	0
	21-31	---	---	---	---	---
17:						
Anawalt	0-2	10-20	6.6-7.8	0	0	0
	2-11	15-25	6.6-7.8	0	0	0
	11-16	25-40	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Raz	0-2	10-15	7.4-7.8	0	0	0
	2-7	10-20	7.4-8.4	0-2	0	0
	7-12	10-20	7.9-8.4	1-3	0	0
	12-23	---	---	---	---	---
	23-33	---	---	---	---	---
18:						
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
19:						
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
20:						
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
21:						
Atlow	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
22:						
Atlow	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
23:						
Atlow	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
24:						
Atlow	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Skedaddle	0-3	15-20	7.4-7.8	0	0	0
	3-8	10-15	7.4-7.8	0	0	0
	8-11	10-15	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
25:						
Ausmus	0-2	10-20	8.5-9.0	2-15	1.0-4.0	10-20
	2-9	20-35	9.1-11.0	10-20	4.0-8.0	20-100
	9-16	20-35	9.1-11.0	10-20	4.0-16.0	100-200
	16-29	20-35	9.1-11.0	10-20	16.0-32.0	300-500
	29-69	20-35	9.1-11.0	1-5	16.0-32.0	300-500
26:						
Ausmus	0-2	10-20	8.5-9.0	2-15	1.0-4.0	10-20
	2-9	20-35	9.1-11.0	10-20	4.0-8.0	20-100
	9-16	20-35	9.1-11.0	10-20	4.0-16.0	100-200
	16-29	20-35	9.1-11.0	10-20	16.0-32.0	300-500
	29-69	20-35	9.1-11.0	1-5	16.0-32.0	300-500
27:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
28:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Clamp	0-3	20-25	6.6-7.8	0	0	0
	3-12	20-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
29:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Clamp	0-3	20-25	6.6-7.8	0	0	0
	3-12	20-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
30:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Clamp	0-3	20-25	6.6-7.8	0	0	0
	3-12	20-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
31:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
32:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
33:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Hackwood	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
34:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Hapgood	0-10	15-25	6.6-7.3	0	0	0
	10-23	15-25	6.6-7.3	0	0	0
	23-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
35:						
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Krackle	0-4	25-35	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
36:						
Berdugo	0-1	15-20	6.6-7.8	0	0	0
	1-12	25-35	7.4-8.4	0	0	0
	12-17	15-20	7.9-8.4	1-3	0	0
	17-26	5.0-20	7.9-9.0	1-3	0.0-2.0	2-5
	26-65	5.0-10	7.9-8.4	0	0	0
37:						
Berdugo	0-1	15-20	6.6-7.8	0	0	0
	1-12	25-35	7.4-8.4	0	0	0
	12-17	15-20	7.9-8.4	1-3	0	0
	17-26	5.0-20	7.9-9.0	1-3	0.0-2.0	2-5
	26-65	5.0-10	7.9-8.4	0	0	0
Catlow	0-3	10-15	7.4-7.8	0	0	0
	3-22	10-15	7.4-7.8	0	0	0
	22-31	5.0-10	7.4-8.4	1-2	0	0
	31-60	0.0-5.0	7.4-8.4	0-1	0	0
38:						
Bigfrog	0-3	10-15	6.6-7.8	0	0	0
	3-18	15-20	7.4-8.4	0	0	0
	18-38	---	---	---	---	---
	38-60	5.0-10	7.9-8.4	0	0	0
Brock	0-3	5.0-10	7.4-8.4	0	0	0
	3-7	10-15	7.9-8.4	0	0	0
	7-10	2.0-5.0	7.9-8.4	0	0	0
	10-16	---	---	---	---	---
	16-60	1.0-5.0	7.9-8.4	0-3	0	0
39:						
Bocker	0-3	10-20	6.1-7.3	0	0	0
	3-7	10-20	6.1-7.3	0	0	0
	7-17	---	---	---	---	---
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
40:						
Boravall	0-9	20-30	9.1-11.0	1-5	16.0-32.0	100-200
	9-43	25-35	8.5-11.0	5-15	2.0-4.0	13-50
	43-60	15-30	7.9-9.0	0-5	0.0-2.0	5-13
Playas	0-60	---	8.5-11.0	---	16.0-32.0	70-999
41:						
Borobey	0-3	5.0-10	7.4-7.8	0	0	0
	3-11	5.0-10	7.4-7.8	0	0	0
	11-23	5.0-10	7.4-8.4	0	0	0
	23-27	1.0-5.0	7.4-8.4	0	0	0
	27-60	1.0-5.0	7.4-8.4	0	0	0
42:						
Boulder Lake	0-1	30-45	6.6-7.8	0	0	0
	1-42	25-40	6.6-7.8	0	0	0
	42-62	25-30	7.4-8.4	0-5	0	0
43:						
Boulder Lake	0-1	30-45	6.6-7.8	0	0	0
	1-42	25-40	6.6-7.8	0	0	0
	42-62	25-30	7.4-8.4	0-5	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
43:						
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
44:						
Boulder Lake	0-1	30-45	6.6-7.8	0	0	0
	1-42	25-40	6.6-7.8	0	0	0
	42-62	25-30	7.4-8.4	0-5	0	0
Spangenburg	0-2	15-20	6.6-7.8	0	0	0
	2-15	30-45	7.4-8.4	0	0	0
	15-34	20-30	7.4-8.4	1-3	0.0-2.0	0
	34-60	10-20	7.4-8.4	0	0.0-2.0	0
45:						
Brabble	0-3	15-25	6.6-7.8	0	0	0
	3-9	15-25	6.6-7.8	0	0	0
	9-26	15-25	7.4-7.8	0	0	0
	26-33	15-20	7.9-9.0	1-5	0.0-2.0	0-3
	33-38	---	---	---	---	---
	38-48	---	---	---	---	---
Calderwood	0-3	14-19	7.4-7.8	0	0	0
	3-12	14-25	7.4-7.8	0	0	0
	12-18	14-25	7.4-7.8	0	0	0
	18-28	---	---	---	---	---
46:						
Brace	0-6	8.0-13	6.6-7.8	0	0	0
	6-13	9.0-18	7.4-7.8	0	0	0
	13-32	5.0-13	7.4-8.4	1-3	0	0
	32-36	---	---	---	---	---
	36-46	---	---	---	---	---
Coztur	0-9	10-15	7.4-7.8	0	0	0
	9-18	15-25	7.4-8.4	0	0	0
	18-28	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
47:						
Brace	0-6	5.0-10	6.6-7.8	0	0	0
	6-13	9.0-18	7.4-7.8	0	0	0
	13-32	5.0-13	7.4-8.4	1-3	0	0
	32-36	---	---	---	---	---
	36-46	---	---	---	---	---
Vergas	0-6	5.0-15	6.6-7.3	0	0	0
	6-14	15-20	6.6-7.3	0	0	0
	14-20	2.0-5.0	7.4-8.4	0-2	0	0
	20-62	1.0-5.0	7.4-8.4	0-2	0	0
48:						
Bruncan, thick surface	0-5	5.0-10	6.6-8.4	0	0	0
	5-15	10-20	7.4-8.4	0	0	0
	15-17	---	---	---	---	---
	17-27	---	---	---	---	---
Bruncan, thin surface	0-1	5.0-10	6.6-8.4	0	0	0
	1-15	10-20	7.4-8.4	0	0	0
	15-17	---	---	---	---	---
	17-27	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
49:						
Brunzell	0-11	10-20	6.6-7.3	0	0	0
	11-18	10-15	6.6-7.3	0	0	0
	18-30	10-15	6.6-7.3	0	0	0
	30-62	5.0-10	6.6-7.8	0	0	0
50:						
Bucklake	0-2	20-30	7.4-7.8	0	0	0
	2-16	25-35	7.4-7.8	0	0	0
	16-31	25-30	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
51:						
Bucklake	0-2	15-25	7.4-7.8	0	0	0
	2-16	25-35	7.4-7.8	0	0	0
	16-31	25-30	7.4-7.8	0	0	0
	31-41	---	---	---	---	---
Mahoon	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
52:						
Calderwood	0-3	14-19	7.4-7.8	0	0	0
	3-12	14-25	7.4-7.8	0	0	0
	12-18	14-25	7.4-7.8	0	0	0
	18-28	---	---	---	---	---
53:						
Calderwood	0-3	14-19	7.4-7.8	0	0	0
	3-12	14-25	7.4-7.8	0	0	0
	12-18	14-25	7.4-7.8	0	0	0
	18-28	---	---	---	---	---
McConnel	0-3	5.0-10	7.4-8.4	0	0	0
	3-11	5.0-10	7.4-8.4	0	0	0
	11-62	2.0-5.0	7.4-9.0	2-5	0.0-4.0	0-4
54:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
55:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
56:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
57:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
58:						
Carryback, thin surface	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Carryback, thick surface	0-10	20-25	7.4-7.8	0	0	0
	10-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
59:						
Carryback, thin surface	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Carryback, south slopes	0-10	20-25	7.4-7.8	0	0	0
	10-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Carryback, north slopes	0-10	20-25	7.4-7.8	0	0	0
	10-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
60:						
Carryback, south slopes	0-10	20-25	7.4-7.8	0	0	0
	10-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Carryback, north slopes	0-10	20-25	7.4-7.8	0	0	0
	10-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
61:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Pearlwise	0-6	15-25	6.1-7.3	0	0	0
	6-22	10-20	6.1-7.3	0	0	0
	22-32	---	---	---	---	---
62:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Pearlwise	0-6	15-25	6.1-7.3	0	0	0
	6-22	10-20	6.1-7.3	0	0	0
	22-32	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
63:						
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Dickle	0-3	25-35	6.1-7.3	0	0	0
	3-14	20-30	6.1-7.3	0	0	0
	14-24	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
64:						
Carvix	0-6	10-20	6.6-7.8	0	0	0
	6-19	10-20	7.4-8.4	0	0	0
	19-60	10-15	7.4-8.4	0	0	0
65:						
Clamp	0-3	20-25	6.6-7.8	0	0	0
	3-12	20-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Hackwood	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
66:						
Coztur	0-9	5.0-10	7.4-7.8	0	0	0
	9-18	15-25	7.4-8.4	0	0	0
	18-28	---	---	---	---	---
67:						
Crowcamp	0-3	20-25	6.6-7.8	0	0	0
	3-30	35-50	7.4-8.4	0-1	0	0
	30-53	10-20	7.9-8.4	0-3	0.0-2.0	0
	53-68	10-20	7.9-8.4	0	0.0-2.0	0
68:						
Crowcamp	0-3	25-30	6.6-7.8	0	0	0
	3-30	35-50	7.4-8.4	0-1	0	0
	30-53	10-20	7.9-8.4	0-3	0.0-2.0	0
	53-68	10-20	7.9-8.4	0	0.0-2.0	0
Ausmus	0-2	10-20	8.5-9.0	2-15	1.0-4.0	10-20
	2-9	20-35	9.1-11.0	10-20	4.0-8.0	20-100
	9-16	20-35	9.1-11.0	10-20	4.0-16.0	100-200
	16-29	20-35	9.1-11.0	10-20	16.0-32.0	300-500
	29-69	20-35	9.1-11.0	1-5	16.0-32.0	300-500
Poujade	0-4	10-20	6.6-7.8	0	0	0-2
	4-6	10-20	7.4-8.4	0	0	1-5
	6-13	20-40	9.1-11.0	1-5	1.0-4.0	13-50
	13-40	20-40	9.1-11.0	1-5	4.0-8.0	50-170
	40-65	10-30	8.5-11.0	1-5	1.0-4.0	30-170
69:						
Davey	0-3	3.0-8.0	7.4-7.8	0	0	0
	3-18	2.0-5.0	7.4-8.4	0	0.0-2.0	0-2
	18-60	1.0-3.0	7.4-9.0	2-5	1.0-2.0	0-5
70:						
Davey	0-3	3.0-8.0	7.4-7.8	0	0	0
	3-18	2.0-5.0	7.4-8.4	0	0.0-2.0	0-2
	18-60	1.0-3.0	7.4-9.0	2-5	1.0-2.0	0-5
Oreanna	0-7	10-15	7.9-8.4	0	0	0
	7-21	10-15	7.9-8.4	0	0	0
	21-43	0.0-5.0	7.9-8.4	0	0.0-2.0	0-2
	43-50	5.0-10	8.5-9.0	2-5	0.0-2.0	2-8
	50-60	0.0-5.0	8.5-9.0	2-5	0.0-2.0	2-8

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
71:						
Defenbaugh----------	0-5	10-15	7.9-8.4	1-2	2.0-8.0	1-4
	5-29	10-20	7.4-8.4	0-2	0.0-2.0	0
	29-60	10-15	7.4-8.4	0	0	0
72:						
Deppy----------	0-6	10-15	7.9-8.4	0	0.0-2.0	1-3
	6-15	15-20	7.9-8.4	1-5	0.0-2.0	2-10
	15-21	---	---	---	---	---
	21-60	5.0-10	7.9-9.0	1-5	0	5-15
73:						
Deppy----------	0-6	10-15	7.9-8.4	0	0.0-2.0	1-3
	6-15	15-20	7.9-8.4	1-5	0.0-2.0	2-10
	15-21	---	---	---	---	---
	21-60	5.0-10	7.9-9.0	1-5	0	5-15
Tumtum----------	0-2	15-20	7.4-8.4	0	0	0
	2-12	25-30	7.4-8.4	0	0.0-2.0	0
	12-25	---	---	---	---	---
	25-60	5.0-10	7.9-8.4	1-5	0.0-2.0	0-2
74:						
Dickle----------	0-3	25-35	6.1-7.3	0	0	0
	3-14	20-30	6.1-7.3	0	0	0
	14-24	---	---	---	---	---
75:						
Dixon----------	0-2	5.0-10	7.9-8.4	0	0	0
	2-35	10-20	7.9-8.4	1-5	0	0
	35-46	0.0-5.0	7.9-8.4	1-2	0.0-2.0	0-2
	46-60	5.0-10	7.9-8.4	1-2	0.0-2.0	0-2
76:						
Dixon----------	0-2	5.0-10	8.5-9.0	0	2.0-4.0	4-13
	2-35	10-20	8.5-9.0	1-5	0.0-4.0	4-13
	35-46	0.0-5.0	7.9-8.4	1-2	0.0-2.0	0-2
	46-60	5.0-10	7.9-8.4	1-2	0.0-2.0	0-2
77:						
Dixon----------	0-2	10-20	7.9-8.4	0	2.0-4.0	2-8
	2-35	10-20	7.9-8.4	1-5	2.0-4.0	2-8
	35-46	0.0-5.0	7.9-8.4	1-2	0.0-2.0	0-2
	46-60	5.0-10	7.9-8.4	1-2	0.0-2.0	0-2
78:						
Dixon----------	0-2	10-20	8.5-9.0	0	2.0-4.0	4-13
	2-35	10-20	8.5-9.0	1-5	2.0-4.0	4-13
	35-46	0.0-5.0	7.9-8.4	1-2	0.0-2.0	0-2
	46-60	5.0-10	7.9-8.4	1-2	0.0-2.0	0-2
Droval----------	0-4	10-20	9.1-11.0	1-2	8.0-16.0	75-120
	4-22	30-35	7.9-8.4	0-2	16.0-32.0	45-80
	22-32	35-40	6.1-6.5	0-2	16.0-32.0	45-80
	32-61	30-40	6.1-6.5	0-2	16.0-32.0	45-80
79:						
Dogmountain----------	0-3	10-20	7.4-7.8	0	0	0
	3-9	15-25	7.9-8.4	0	0	0
	9-12	20-30	7.9-8.4	0-5	0	0
	12-21	20-30	7.9-8.4	2-5	0.0-2.0	0-2
	21-30	---	---	---	---	---
	30-60	0.0-5.0	7.9-8.4	2-5	2.0-4.0	0-2

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
80:						
Doyn	0-2	10-20	6.6-7.8	0	0	0
	2-8	10-20	7.4-8.4	0	0	0
	8-18	---	---	---	---	---
81:						
Doyn	0-2	10-20	6.6-7.8	0	0	0
	2-8	10-20	7.4-8.4	0	0	0
	8-18	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
82:						
Doyn	0-2	10-20	6.6-7.8	0	0	0
	2-8	10-20	7.4-8.4	0	0	0
	8-18	---	---	---	---	---
Arcia	0-4	13-26	6.6-7.8	0	0	0
	4-13	14-27	6.6-7.8	0	0	0
	13-23	24-35	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
83:						
Drewsey	0-3	25-35	6.6-7.8	0	0	0
	3-32	25-35	7.4-7.8	0	0	0
	32-62	25-35	7.4-8.4	1-5	0	0
84:						
Drewsey	0-3	25-35	6.6-7.8	0	0	0
	3-32	25-35	7.4-7.8	0	0	0
	32-62	25-35	7.4-8.4	1-5	0	0
85:						
Drewsey	0-3	25-35	6.6-7.8	0	0	0
	3-32	25-35	7.4-7.8	0	0	0
	32-62	25-35	7.4-8.4	1-5	0	0
Torriorthents	0-7	---	---	---	---	---
	7-17	---	---	---	---	---
Gumble	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
86:						
Droval	0-4	10-20	9.1-11.0	1-2	8.0-16.0	75-120
	4-22	30-35	7.9-8.4	0-2	16.0-32.0	45-80
	22-32	35-40	6.1-6.5	0-2	16.0-32.0	45-80
	32-61	30-40	6.1-6.5	0-2	16.0-32.0	45-80
87:						
Duff	0-8	20-30	6.6-7.3	0	0	0
	8-24	15-25	6.6-7.3	0	0	0
	24-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
88:						
Duff	0-8	20-30	6.6-7.3	0	0	0
	8-24	15-25	6.6-7.3	0	0	0
	24-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
88:						
Clamp	0-3	20-25	6.6-7.8	0	0	0
	3-12	20-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
89:						
Duff	0-8	20-30	6.6-7.3	0	0	0
	8-24	15-25	6.6-7.3	0	0	0
	24-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
Clamp	0-3	20-25	6.6-7.8	0	0	0
	3-12	20-25	6.6-7.8	0	0	0
	12-22	---	---	---	---	---
90:						
Duff	0-8	20-30	6.6-7.3	0	0	0
	8-24	15-25	6.6-7.3	0	0	0
	24-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
Hackwood	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
91:						
Edemaps	0-7	15-25	6.6-7.8	0	0	0
	7-18	30-45	6.6-7.8	0	0	0
	18-25	30-45	7.4-8.4	0	0	0
	25-30	---	---	---	---	---
	30-40	---	---	---	---	---
92:						
Edemaps	0-7	20-30	6.6-7.8	0	0	0
	7-18	30-45	6.6-7.8	0	0	0
	18-25	30-45	7.4-8.4	0	0	0
	25-30	---	---	---	---	---
	30-40	---	---	---	---	---
Carryback	0-7	20-25	7.4-7.8	0	0	0
	7-24	30-45	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
93:						
Enko	0-8	2.0-5.0	7.4-8.4	0	0	0
	8-29	5.0-10	7.4-8.4	0	0	0
	29-45	5.0-10	7.4-8.4	1-3	0.0-2.0	0
	45-62	2.0-5.0	7.4-8.4	1-3	0.0-2.0	0
94:						
Enko	0-8	2.0-5.0	7.4-8.4	0	0	0
	8-29	5.0-10	7.4-8.4	0	0	0
	29-45	5.0-10	7.4-8.4	1-3	0.0-2.0	0
	45-62	2.0-5.0	7.4-8.4	1-3	0.0-2.0	0
Catlow	0-3	10-15	7.4-7.8	0	0	0
	3-22	10-15	7.4-7.8	0	0	0
	22-31	5.0-10	7.4-8.4	1-2	0	0
	31-60	0.0-5.0	7.4-8.4	0-1	0	0
95:						
Enko	0-8	2.0-5.0	7.4-8.4	0	0	0
	8-29	5.0-10	7.4-8.4	0	0	0
	29-45	5.0-10	7.4-8.4	1-3	0.0-2.0	0
	45-62	2.0-5.0	7.4-8.4	1-3	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
95:						
Catlow	0-3	10-15	7.4-7.8	0	0	0
	3-22	10-15	7.4-7.8	0	0	0
	22-31	5.0-10	7.4-8.4	1-2	0	0
	31-60	0.0-5.0	7.4-8.4	0-1	0	0
96:						
Enko	0-8	2.0-5.0	7.4-8.4	0	0	0
	8-29	5.0-10	7.4-8.4	0	0	0
	29-45	5.0-10	7.4-8.4	1-3	0.0-2.0	0
	45-62	2.0-5.0	7.4-8.4	1-3	0.0-2.0	0
Catlow	0-3	10-15	7.4-7.8	0	0	0
	3-22	10-15	7.4-7.8	0	0	0
	22-31	5.0-10	7.4-8.4	1-2	0	0
	31-60	0.0-5.0	7.4-8.4	0-1	0	0
97:						
Erakatak	0-7	20-25	6.6-7.3	0	0	0
	7-16	20-30	6.6-7.3	0	0	0
	16-25	25-35	6.6-7.3	0	0	0
	25-35	---	---	---	---	---
98:						
Erakatak	0-7	15-25	6.6-7.3	0	0	0
	7-16	20-30	6.6-7.3	0	0	0
	16-25	25-35	6.6-7.3	0	0	0
	25-35	---	---	---	---	---
Lambring	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
99:						
Erakatak	0-7	15-25	6.6-7.3	0	0	0
	7-16	20-30	6.6-7.3	0	0	0
	16-25	25-35	6.6-7.3	0	0	0
	25-35	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
100:						
Erakatak	0-7	20-25	6.6-7.3	0	0	0
	7-16	20-30	6.6-7.3	0	0	0
	16-25	25-35	6.6-7.3	0	0	0
	25-35	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
101:						
Erakatak	0-7	20-25	6.6-7.3	0	0	0
	7-16	20-30	6.6-7.3	0	0	0
	16-25	25-35	6.6-7.3	0	0	0
	25-35	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
101:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Hapgood	0-10	20-30	6.6-7.3	0	0	0
	10-23	15-25	6.6-7.3	0	0	0
	23-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
102:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
103:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
104:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Brezniak	0-3	15-25	6.6-7.3	0	0	0
	3-7	25-35	6.6-7.3	0	0	0
	7-10	25-35	6.6-7.3	0	0	0
	10-20	---	---	---	---	---
105:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
106:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Sagehen	0-10	10-20	6.6-7.8	0	0	0
	10-19	10-20	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
107:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Sagehen	0-10	10-20	6.6-7.8	0	0	0
	10-19	10-20	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
108:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
108:						
Fitzwater	0-9	10-15	7.4-7.8	0	0	0
	9-16	10-15	7.4-7.8	0	0	0
	16-30	10-15	7.4-7.8	0	0	0
	30-58	5.0-10	7.4-7.8	0	0	0
	58-68	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
109:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Pernty	0-3	15-25	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
110:						
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
111:						
Final	0-3	20-25	7.9-9.0	0	2.0-4.0	25-45
	3-12	30-50	7.9-9.0	0-1	4.0-8.0	30-60
	12-24	30-50	8.5-9.0	0-1	8.0-16.0	50-90
	24-42	20-40	9.1-11.0	0-2	8.0-16.0	80-120
	42-60	20-40	9.1-11.0	1-2	4.0-8.0	80-120
112:						
Fitzwater	0-9	10-15	7.4-7.8	0	0	0
	9-16	10-15	7.4-7.8	0	0	0
	16-30	10-15	7.4-7.8	0	0	0
	30-58	5.0-10	7.4-7.8	0	0	0
	58-68	---	---	---	---	---
Hapgood, thick surface	0-10	15-25	6.6-7.3	0	0	0
	10-23	15-25	6.6-7.3	0	0	0
	23-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
Hapgood, thin surface	0-5	15-25	6.6-7.3	0	0	0
	5-23	15-25	6.6-7.3	0	0	0
	23-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
113:						
Fitzwater	0-9	10-15	7.4-7.8	0	0	0
	9-16	10-15	7.4-7.8	0	0	0
	16-30	10-15	7.4-7.8	0	0	0
	30-58	5.0-10	7.4-7.8	0	0	0
	58-68	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
114:						
Flank----------	0-1	2.0-5.0	7.4-7.8	0	0	0
	1-9	5.0-15	7.4-7.8	0	0	0
	9-19	---	---	---	---	---
Lava flows----------	0-60	---	---	---	---	---
115:						
Fourwheel----------	0-7	10-20	6.6-7.8	0	0	0
	7-22	30-45	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
116:						
Fourwheel----------	0-7	10-20	6.6-7.8	0	0	0
	7-22	30-45	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
117:						
Freznik----------	0-4	15-20	7.4-7.8	0	0	0
	4-12	20-30	7.4-8.4	0	0	0
	12-20	35-45	7.4-8.4	0	0	0
	20-35	20-30	7.4-8.4	0	0	0
	35-45	---	---	---	---	---
118:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
119:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
120:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
Degarmo----------	0-3	10-20	7.4-8.4	0-1	0.0-2.0	0
	3-10	20-25	7.4-7.8	0-1	0.0-2.0	0
	10-21	25-30	7.4-7.8	0	0	0
	21-28	15-25	7.4-7.8	0	0	0
	28-34	10-15	7.4-7.8	0	0	0
	34-60	5.0-10	7.4-7.8	0	0	0
121:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
121:						
Housefield----------	0-6	20-40	6.6-7.8	0	0	0
	6-36	20-40	6.6-7.8	0	0	0
	36-48	20-40	6.6-7.8	0	0	0
	48-60	15-25	6.6-7.8	0	0	0
122:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
Housefield----------	0-6	20-40	6.6-7.8	0	0	0
	6-36	20-40	6.6-7.8	0	0	0
	36-48	20-40	6.6-7.8	0	0	0
	48-60	15-25	6.6-7.8	0	0	0
Skidoosprings--------	0-11	5.0-15	8.5-11.0	2-5	2.0-10.0	30-90
	11-23	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	23-30	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	30-41	5.0-10	8.5-11.0	2-5	2.0-4.0	10-30
	41-49	---	---	---	---	---
	49-60	1.0-5.0	8.5-9.0	0	2.0-4.0	10-20
123:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
Opie----------	0-7	15-20	9.1-11.0	1-2	16.0-30.0	2-8
	7-10	15-20	9.1-11.0	1-2	16.0-30.0	2-8
	10-16	10-15	8.5-9.0	2-5	8.0-16.0	5-10
	16-26	10-20	8.5-9.0	2-5	8.0-16.0	5-10
	26-44	10-15	8.5-9.0	2-5	8.0-16.0	5-10
	44-64	5.0-10	7.9-8.4	0-2	2.0-4.0	0-5
124:						
Fury----------	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
Skidoosprings--------	0-11	5.0-15	8.5-11.0	2-5	2.0-10.0	30-90
	11-23	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	23-30	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	30-41	5.0-10	8.5-11.0	2-5	2.0-4.0	10-30
	41-49	---	---	---	---	---
	49-60	1.0-5.0	8.5-9.0	0	2.0-4.0	10-20
Opie----------	0-7	15-20	9.1-11.0	1-2	16.0-30.0	2-8
	7-10	15-20	9.1-11.0	1-2	16.0-30.0	2-8
	10-16	10-15	8.5-9.0	2-5	8.0-16.0	5-10
	16-26	10-20	8.5-9.0	2-5	8.0-16.0	5-10
	26-44	10-15	8.5-9.0	2-5	8.0-16.0	5-10
	44-64	5.0-10	7.9-8.4	0-2	2.0-4.0	0-5

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
125:						
Fury	0-14	10-20	7.9-8.4	0-5	2.0-4.0	5-10
	14-21	15-20	7.4-7.8	0-5	0.0-2.0	5-10
	21-27	15-20	7.4-7.8	5-10	0.0-2.0	0-5
	27-34	10-15	7.4-7.8	0-5	0.0-2.0	0-5
	34-44	5.0-10	7.4-7.8	0	0.0-2.0	0-5
	44-60	15-20	7.4-7.8	0	0.0-2.0	0-5
Widowspring	0-22	15-20	6.6-7.8	0	0	0
	22-43	10-20	6.6-7.8	0	0	0
	43-63	10-15	6.6-7.8	0	0	0
126:						
Gaib	0-7	15-25	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-26	---	---	---	---	---
127:						
Gaib	0-7	15-25	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-26	---	---	---	---	---
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
128:						
Gaib	0-7	15-25	6.1-7.3	0	0	0
	7-16	10-20	6.1-7.3	0	0	0
	16-26	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
129:						
Gilispie	0-5	15-25	6.1-7.3	0	0	0
	5-14	15-25	6.1-7.3	0	0	0
	14-24	---	---	---	---	---
Noname	0-3	15-25	6.1-7.3	0	0	0
	3-12	15-25	6.1-7.3	0	0	0
	12-22	---	---	---	---	---
130:						
Gochea	0-9	5.0-15	6.6-7.8	0	0	0
	9-13	5.0-15	6.6-7.8	0	0	0
	13-27	5.0-10	7.4-8.4	0	0	0
	27-62	5.0-10	7.4-8.4	0-1	0	0
131:						
Goldrun	0-24	1.0-8.0	7.9-8.4	0	0	0
	24-56	1.0-5.0	7.9-8.4	1-2	0	0-2
	56-62	10-15	7.9-8.4	2-5	1.0-2.0	2-5
Alvodest	0-6	20-30	9.1-11.0	5-10	16.0-32.0	800-999
	6-42	25-40	9.1-11.0	5-15	14.0-32.0	70-700
	42-78	20-35	9.1-11.0	5-15	12.0-32.0	70-700
132:						
Gradon	0-3	10-15	6.6-7.8	0	0	0
	3-10	10-15	6.6-7.8	0	0	0
	10-32	15-20	7.4-7.8	0-5	0	0
	32-48	---	---	---	---	---
	48-52	---	---	---	---	---
	52-62	2.0-5.0	7.4-8.4	0	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
133:						
Guano	0-3	5.0-10	7.4-8.4	0	0	0
	3-11	10-20	7.4-8.4	0	0	0
	11-21	---	---	---	---	---
134:						
Gumble	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
135:						
Gumble	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
136:						
Gumble	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
Mahoon	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---
Cagle	0-4	15-20	6.6-7.8	0	0	0
	4-12	25-35	7.4-7.8	0	0	0
	12-24	25-35	7.4-7.8	0	0	0
	24-36	25-30	7.4-7.8	0	0	0
	36-46	---	---	---	---	---
137:						
Hackwood	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
138:						
Hackwood	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
139:						
Hapgood	0-10	20-30	6.6-7.3	0	0	0
	10-23	15-25	6.6-7.3	0	0	0
	23-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
140:						
Hart Camp	0-3	10-20	6.6-7.8	0	0	0
	3-9	10-20	6.6-7.8	0	0	0
	9-19	10-20	6.6-7.8	0	0	0
	19-29	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
141:						
Hart Camp----------	0-3	10-20	6.6-7.8	0	0	0
	3-9	10-20	6.6-7.8	0	0	0
	9-19	10-20	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
142:						
Helphenstein---------	0-3	10-15	7.4-8.4	2-4	4.0-8.0	20-50
	3-9	10-15	7.4-8.4	2-4	4.0-8.0	20-50
	9-26	15-25	8.5-9.0	2-10	2.0-8.0	40-100
	26-62	10-15	7.9-9.0	2-10	0.0-2.0	5-13
Goldrun----------	0-24	1.0-8.0	7.9-8.4	0	0	0
	24-56	1.0-5.0	7.9-8.4	1-2	0	0-2
	56-62	10-15	7.9-8.4	2-5	1.0-2.0	2-5
143:						
Homefield----------	0-6	20-40	8.5-11.0	1-5	4.0-8.0	10-20
	6-36	20-40	7.9-9.0	1-5	2.0-8.0	4-16
	36-48	20-40	7.9-9.0	1-5	2.0-8.0	4-16
	48-60	15-25	7.9-9.0	0-5	2.0-8.0	4-16
144:						
Housefield----------	0-6	20-40	6.6-7.8	0	0	0
	6-36	20-40	6.6-7.8	0	0	0
	36-48	20-40	6.6-7.8	0	0	0
	48-60	15-25	6.6-7.8	0	0	0
145:						
Housefield----------	0-6	20-40	6.6-7.8	0	0	0
	6-36	20-40	6.6-7.8	0	0	0
	36-48	20-40	6.6-7.8	0	0	0
	48-60	15-25	6.6-7.8	0	0	0
Doubleo----------	0-3	15-25	7.4-8.4	2-5	0	0
	3-10	25-35	7.4-8.4	1-2	0	0
	10-20	30-40	7.4-8.4	1-2	0	0
	20-28	20-25	7.4-8.4	2-5	0	0
	28-45	5.0-10	7.4-8.4	1-2	0	0
	45-60	5.0-10	7.4-8.4	1-2	0	0
146:						
Icene----------	0-6	10-15	7.9-9.0	0	4.0-8.0	13-25
	6-22	10-15	7.9-9.0	2-10	16.0-32.0	90-120
	22-44	10-15	7.9-9.0	2-10	16.0-32.0	90-120
	44-62	10-15	7.9-9.0	0-2	16.0-32.0	20-70
Playas----------	0-60	---	8.5-11.0	---	16.0-32.0	70-999
147:						
Icene----------	0-6	10-15	7.4-7.8	0	4.0-8.0	5-15
	6-22	10-15	7.9-9.0	2-10	16.0-32.0	90-120
	22-44	10-15	7.9-9.0	2-10	16.0-32.0	90-120
	44-62	10-15	7.9-9.0	0-2	16.0-32.0	20-70
Playas----------	0-60	---	8.5-11.0	---	16.0-32.0	70-999
148:						
Jesse Camp----------	0-4	---	7.4-8.4	0	0.0-2.0	0
	4-34	---	7.4-8.4	2-5	2.0-8.0	0
	34-50	---	7.9-9.0	2-5	2.0-8.0	0
	50-60	---	7.9-9.0	0-5	2.0-8.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
149:						
Jimgreen	0-10	40-90	6.1-7.3	0	0	0
	10-12	10-20	6.1-7.3	0	0	0
	12-32	40-90	6.1-7.3	0	0	0
	32-44	40-90	6.1-7.3	0	0	0
	44-60	40-90	6.6-7.3	0	0	0
150:						
Jimgreen	0-10	40-90	6.1-7.3	0	0	0
	10-12	10-20	6.1-7.3	0	0	0
	12-32	40-90	6.1-7.3	0	0	0
	32-44	40-90	6.1-7.3	0	0	0
	44-60	40-90	6.6-7.3	0	0	0
Housefield	0-6	20-40	6.6-7.8	0	0	0
	6-36	20-40	6.6-7.8	0	0	0
	36-48	20-40	6.6-7.8	0	0	0
	48-60	15-25	6.6-7.8	0	0	0
151:						
Kegler	0-10	5.0-15	6.6-7.8	0	0	0
	10-32	10-15	7.4-8.4	0	0	0
	32-37	10-15	7.4-8.4	2-5	0.0-2.0	0-2
	37-49	---	---	---	---	---
	49-62	5.0-10	7.9-8.4	0	0.0-4.0	0-2
152:						
Kerrfield	0-3	10-15	7.4-7.8	0	0	0
	3-12	10-15	7.4-7.8	0	0	0
	12-26	5.0-10	7.4-8.4	2-5	0	0
	26-33	0.0-5.0	8.5-9.0	2-5	0	2-8
	33-43	---	---	---	---	---
153:						
Klicker	0-3	15-25	6.1-7.3	0	0	0
	3-13	15-25	6.1-7.3	0	0	0
	13-24	10-20	6.1-7.3	0	0	0
	24-34	---	---	---	---	---
154:						
Klicker	0-3	15-25	6.1-7.3	0	0	0
	3-13	15-25	6.1-7.3	0	0	0
	13-24	10-20	6.1-7.3	0	0	0
	24-34	---	---	---	---	---
155:						
Krackle, north slopes	0-4	20-30	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Krackle, south slopes	0-4	20-30	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
156:						
Krackle	0-4	20-30	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
156:						
Rock outcrop---	0-60	---	---	---	---	---
157:						
Krackle---	0-4	20-30	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Baconcamp---	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Rock outcrop---	0-60	---	---	---	---	---
158:						
Krackle---	0-4	25-35	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Rock outcrop---	0-60	---	---	---	---	---
159:						
Krackle---	0-4	25-35	6.6-7.3	0	0	0
	4-15	20-30	6.6-7.3	0	0	0
	15-30	20-30	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Baconcamp---	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
Hackwood---	0-11	20-30	6.6-7.3	0	0	0
	11-23	15-25	6.6-7.3	0	0	0
	23-48	10-20	6.6-7.3	0	0	0
	48-60	10-20	6.6-7.3	0	0	0
160:						
Ladycomb---	0-2	25-30	6.6-7.3	0	0	0
	2-8	25-35	6.6-7.3	0	0	0
	8-18	---	---	---	---	---
161:						
Lambranch---	0-3	10-20	7.4-7.8	0	0	0
	3-7	15-25	7.4-7.8	0	0	0
	7-14	25-40	7.4-7.8	0	0	0
	14-19	15-25	7.4-7.8	0	0	0
	19-27	25-40	7.4-7.8	0	0	0
	27-60	10-20	7.4-7.8	0	0	0
162:						
Lambring---	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Egyptcreek---	0-8	15-25	6.1-7.3	0	0	0
	8-18	10-20	6.1-7.3	0	0	0
	18-24	10-20	6.1-7.3	0	0	0
	24-34	---	---	---	---	---
Rock outcrop---	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
163:						
Lambring, thick surface	0-10	15-25	6.6-7.8	0	0	0
	10-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Lambring, thin surface	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
164:						
Lambring	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rubble land	0-60	---	---	---	---	---
165:						
Langslet	0-14	30-40	7.4-7.8	5-10	0	0
	14-23	25-30	7.4-7.8	5-10	0	0
	23-49	25-40	7.4-7.8	0	0	0
	49-62	20-25	7.4-7.8	0	0	0
166:						
Lava flows	0-60	---	---	---	---	---
167:						
Lava flows	0-60	---	---	---	---	---
Flank	0-1	5.0-10	7.4-7.8	0	0	0
	1-9	5.0-15	7.4-7.8	0	0	0
	9-19	---	---	---	---	---
168:						
Lawen	0-10	5.0-10	7.4-7.8	0	0	0
	10-15	5.0-10	7.4-8.4	0	0.0-2.0	0
	15-40	0.0-5.0	7.4-8.4	1-5	0.0-2.0	0
	40-60	0.0-5.0	7.4-8.4	0	0.0-2.0	0
169:						
Leathers	0-2	15-35	8.5-9.6	0	1.0-2.0	10-13
	2-9	15-35	8.5-9.6	0	1.0-2.0	13-25
	9-24	10-30	8.5-9.6	1-5	4.0-16.0	20-70
	24-28	10-20	8.5-9.6	1-5	4.0-16.0	20-70
	28-52	5.0-15	8.5-9.6	1-5	4.0-8.0	20-50
	52-61	2.0-5.0	8.5-9.6	0	1.0-4.0	13-25
170:						
Leathers	0-2	15-35	8.5-9.6	0	1.0-2.0	10-13
	2-9	15-35	8.5-9.6	0	1.0-2.0	13-25
	9-24	10-30	8.5-9.6	1-5	4.0-16.0	20-70
	24-28	10-20	8.5-9.6	1-5	4.0-16.0	20-70
	28-52	5.0-15	8.5-9.6	1-5	4.0-8.0	20-50
	52-61	2.0-5.0	8.5-9.6	0	1.0-4.0	13-25
171:						
Leemorris	0-5	25-35	6.1-7.3	0	0	0
	5-26	25-35	6.6-7.3	0	0	0
	26-30	35-50	6.6-7.3	0	0	0
	30-40	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
171:						
Buckwilder	0-8	25-35	6.1-6.5	0	0	0
	8-21	50-70	6.6-7.3	0	0	0
	21-27	50-70	7.4-8.4	1-2	0	0
	27-37	---	---	---	---	---
172:						
Leemorris	0-5	25-35	6.1-7.3	0	0	0
	5-26	25-35	6.6-7.3	0	0	0
	26-30	35-50	6.6-7.3	0	0	0
	30-40	---	---	---	---	---
Buckwilder	0-8	25-35	6.1-6.5	0	0	0
	8-21	50-70	6.6-7.3	0	0	0
	21-27	50-70	7.4-8.4	1-2	0	0
	27-37	---	---	---	---	---
173:						
Legler	0-4	15-20	6.6-7.8	0	0	0
	4-45	10-20	7.4-8.4	0	0.0-2.0	0
	45-62	10-15	7.9-8.4	0-2	0.0-2.0	0
174:						
Locane	0-7	10-20	6.6-7.3	0	0	0
	7-15	20-35	6.6-7.3	0	0	0
	15-25	---	---	---	---	---
175:						
Lolak	0-3	5.0-15	7.4-8.4	0	0.0-2.0	13-25
	3-10	20-30	9.1-11.0	0-1	1.0-4.0	20-40
	10-28	30-40	9.1-11.0	1-5	1.0-4.0	20-40
	28-40	25-35	8.5-9.0	1-5	0.0-2.0	10-25
	40-60	20-30	8.5-9.0	0-1	0.0-2.0	5-15
176:						
Lolak	0-3	5.0-15	7.4-8.4	0	0.0-2.0	13-25
	3-10	20-30	9.1-11.0	0-1	1.0-4.0	20-40
	10-28	30-40	9.1-11.0	1-5	1.0-4.0	20-40
	28-40	25-35	8.5-9.0	1-5	0.0-2.0	10-25
	40-60	20-30	8.5-9.0	0-1	0.0-2.0	5-15
Ausmus	0-2	10-20	8.5-9.0	2-15	1.0-4.0	10-20
	2-9	20-35	9.1-11.0	10-20	4.0-8.0	20-100
	9-16	20-35	9.1-11.0	10-20	4.0-16.0	100-200
	16-29	20-35	9.1-11.0	10-20	16.0-32.0	300-500
	29-69	20-35	9.1-11.0	1-5	16.0-32.0	300-500
177:						
Lonely	0-4	15-20	6.6-7.3	0	0	0
	4-16	15-20	6.6-7.8	0	0	0
	16-24	15-20	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Doyn	0-2	10-20	6.6-7.8	0	0	0
	2-8	10-20	7.4-8.4	0	0	0
	8-18	---	---	---	---	---
178:						
Lonely	0-4	15-20	6.6-7.3	0	0	0
	4-16	15-20	6.6-7.8	0	0	0
	16-24	15-20	7.4-7.8	0	0	0
	24-34	---	---	---	---	---
Robson	0-4	20-30	6.6-7.3	0	0	0
	4-13	30-45	6.6-7.8	0	0	0
	13-23	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
179:						
Longcreek----------	0-7	15-25	6.6-7.3	0	0	0
	7-18	25-35	6.6-7.8	0	0	0
	18-28	---	---	---	---	---
Cleavage----------	0-7	20-30	6.6-7.8	0	0	0
	7-15	20-40	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
180:						
Longcreek----------	0-7	15-25	6.6-7.3	0	0	0
	7-18	25-35	6.6-7.8	0	0	0
	18-28	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
181:						
Loupence----------	0-2	15-25	6.6-7.8	0	0	0
	2-24	10-25	6.6-7.8	0	0	0
	24-49	10-20	6.6-7.8	0-1	0	0
	49-60	5.0-10	6.6-7.8	0-1	0	0
182:						
Madeline----------	0-2	10-20	6.6-7.8	0	0	0
	2-10	25-30	6.6-7.8	0	0	0
	10-19	30-45	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
183:						
Madeline----------	0-2	10-20	6.6-7.8	0	0	0
	2-10	25-30	6.6-7.8	0	0	0
	10-19	30-45	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
184:						
Madeline----------	0-2	15-25	6.6-7.8	0	0	0
	2-10	25-30	6.6-7.8	0	0	0
	10-19	30-45	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
Ninemile----------	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
185:						
Madeline----------	0-2	10-20	6.6-7.8	0	0	0
	2-10	25-30	6.6-7.8	0	0	0
	10-19	30-45	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
186:						
Mahoon----------	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---
187:						
Mahoon----------	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
187:						
Brezniak----------	0-3	15-25	6.6-7.3	0	0	0
	3-7	25-35	6.6-7.3	0	0	0
	7-10	25-35	6.6-7.3	0	0	0
	10-20	---	---	---	---	---
Longcreek----------	0-7	15-25	6.6-7.3	0	0	0
	7-18	25-35	6.6-7.8	0	0	0
	18-28	---	---	---	---	---
188:						
Mahoon----------	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---
Cagle----------	0-4	20-30	6.6-7.8	0	0	0
	4-12	25-35	7.4-7.8	0	0	0
	12-24	25-35	7.4-7.8	0	0	0
	24-36	25-30	7.4-7.8	0	0	0
	36-46	---	---	---	---	---
189:						
Mahoon----------	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---
Risley----------	0-3	10-20	6.6-7.8	0	0	0
	3-25	25-45	6.6-7.8	0	0	0
	25-37	15-25	7.4-8.4	2-5	0	0
	37-39	15-25	7.4-8.4	1-5	0	0
	39-49	---	---	---	---	---
190:						
Mahoon----------	0-3	15-25	6.6-7.8	0	0	0
	3-9	20-40	7.4-7.8	0	0	0
	9-18	30-50	7.4-8.4	0	0	0
	18-25	30-50	7.4-8.4	0	0	0
	25-35	---	---	---	---	---
Cotant----------	0-3	10-20	6.6-7.3	0	0	0
	3-13	25-35	6.6-7.3	0	0	0
	13-23	---	---	---	---	---
191:						
Mcbain----------	0-5	6.0-9.0	8.5-9.0	10-15	16.0-30.0	50-125
	5-22	9.0-12	7.9-9.0	15-30	4.0-8.0	13-50
	22-27	15-20	7.9-9.0	15-30	4.0-8.0	13-50
	27-37	5.0-8.0	7.9-8.4	0-1	0.0-4.0	0-5
	37-43	15-18	7.9-8.4	0-1	0.0-4.0	0-5
	43-60	7.0-10	7.9-8.4	0-1	0.0-4.0	0-5
Ausmus----------	0-2	10-20	8.5-9.0	2-15	1.0-4.0	10-20
	2-9	20-35	9.1-11.0	10-20	4.0-8.0	20-100
	9-16	20-35	9.1-11.0	10-20	4.0-16.0	100-200
	16-29	20-35	9.1-11.0	10-20	16.0-32.0	300-500
	29-69	20-35	9.1-11.0	1-5	16.0-32.0	300-500
192:						
McConnel----------	0-3	5.0-10	7.4-8.4	0	0	0
	3-11	5.0-10	7.4-8.4	0	0	0
	11-62	2.0-5.0	7.4-9.0	2-5	0.0-4.0	0-4

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
193:						
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
194:						
Merlin, very stony	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Merlin, very cobbly	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
195:						
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
196:						
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
197:						
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
Ticino	0-9	15-25	6.1-7.3	0	0	0
	9-26	10-20	6.1-7.8	0	0	0
	26-29	---	---	---	---	---
	29-39	---	---	---	---	---
198:						
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
198:						
Erakatak----------	0-7	15-25	6.6-7.3	0	0	0
	7-16	20-30	6.6-7.3	0	0	0
	16-25	25-35	6.6-7.3	0	0	0
	25-35	---	---	---	---	---
Teguro----------	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
199:						
Merlin----------	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Observation----------	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
200:						
Merlin----------	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Observation----------	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
201:						
Merlin----------	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Rubble land----------	0-60	---	---	---	---	---
202:						
Merlin----------	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Teguro----------	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
203:						
Merlin----------	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Teguro----------	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
204:						
Mesman	0-4	0.0-5.0	7.9-8.4	0-1	2.0-8.0	5-20
	4-26	10-20	7.9-9.0	0-1	16.0-32.0	25-70
	26-62	5.0-15	7.9-8.4	0-1	16.0-32.0	20-70
205:						
Mesman	0-4	0.0-10	7.4-8.4	0-1	2.0-8.0	5-30
	4-26	10-20	7.9-9.0	0-1	16.0-32.0	25-70
	26-62	5.0-15	7.9-8.4	0-1	16.0-32.0	20-70
206:						
Mesman	0-4	0.0-10	7.4-8.4	0-1	2.0-8.0	5-30
	4-26	10-20	7.9-9.0	0-1	16.0-32.0	25-70
	26-62	5.0-15	7.9-8.4	0-1	16.0-32.0	20-70
Norad	0-3	10-15	6.6-7.3	0	0	0
	3-23	15-25	6.6-8.4	0	0	0
	23-34	15-20	6.6-8.4	0	0	0
	34-61	15-20	6.6-8.4	0	0.0-2.0	0
207:						
Middlebox	0-4	10-15	6.6-7.8	0	0	0
	4-10	10-25	6.6-7.8	0	0	0
	10-35	10-25	6.6-7.8	0	0	0
	35-45	---	---	---	---	---
208:						
Middlebox, north slopes	0-4	10-15	6.6-7.8	0	0	0
	4-10	10-25	6.6-7.8	0	0	0
	10-35	10-25	6.6-7.8	0	0	0
	35-45	---	---	---	---	---
Middlebox, south slopes	0-4	10-15	6.6-7.8	0	0	0
	4-10	10-25	6.6-7.8	0	0	0
	10-35	10-25	6.6-7.8	0	0	0
	35-45	---	---	---	---	---
209:						
Minam	0-3	20-30	6.6-7.3	0	0	0
	3-29	15-25	6.6-7.3	0	0	0
	29-39	15-25	6.6-7.3	0	0	0
	39-52	10-20	6.6-7.3	0	0	0
	52-62	5.0-15	6.6-7.3	0	0	0
210:						
Minam	0-3	20-30	6.6-7.3	0	0	0
	3-29	15-25	6.6-7.3	0	0	0
	29-39	15-25	6.6-7.3	0	0	0
	39-52	10-20	6.6-7.3	0	0	0
	52-62	5.0-15	6.6-7.3	0	0	0
Welch	0-5	25-35	6.1-7.3	0	0	0
	5-60	20-40	6.1-7.8	0	0	0
211:						
Modoc	0-2	5.0-10	6.6-7.3	0	0	0
	2-13	10-15	6.6-7.3	0	0	0
	13-22	10-15	6.6-7.3	0	0	0
	22-25	15-20	6.6-7.3	0	0	0
	25-41	---	---	---	---	---
	41-60	3.0-8.0	7.4-7.8	1-2	0.0-2.0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
212:						
Morfitt	0-2	10-15	7.4-7.8	0	0	0
	2-41	15-20	7.4-8.4	0	0	0
	41-60	10-15	7.4-7.8	0-2	0	0
213:						
Morganhills	0-8	5.0-10	6.6-7.8	0	0	0
	8-15	5.0-10	6.6-7.8	0	0	0
	15-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
214:						
Morganhills, more than 12 percent slopes	0-8	5.0-10	6.6-7.8	0	0	0
	8-15	5.0-10	6.6-7.8	0	0	0
	15-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
Morganhills, less than 12 percent slopes	0-8	5.0-10	6.6-7.8	0	0	0
	8-15	5.0-10	6.6-7.8	0	0	0
	15-17	5.0-10	6.6-7.8	0	0	0
	17-27	---	---	---	---	---
215:						
Mound	0-3	20-30	6.1-7.3	0	0	0
	3-10	20-30	6.1-7.3	0	0	0
	10-20	25-40	6.1-7.3	0	0	0
	20-53	25-40	6.1-7.3	0	0	0
	53-63	---	---	---	---	---
216:						
Nevador	0-3	10-15	7.4-7.8	0	0	0
	3-7	15-20	7.4-7.8	0	0	0
	7-18	20-25	7.9-8.4	0	0.0-2.0	0
	18-32	5.0-10	7.9-8.4	1-5	0.0-2.0	0
	32-62	5.0-10	7.9-8.4	1-5	0.0-2.0	0
217:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
218:						
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
219:						
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
220:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Carvix	0-6	10-20	6.6-7.8	0	0	0
	6-19	10-20	7.4-8.4	0	0	0
	19-60	10-15	7.4-8.4	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
221:						
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Doyn	0-2	10-20	6.6-7.8	0	0	0
	2-8	10-20	7.4-8.4	0	0	0
	8-18	---	---	---	---	---
222:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Edemaps	0-7	20-30	6.6-7.8	0	0	0
	7-18	30-45	6.6-7.8	0	0	0
	18-25	30-45	7.4-8.4	0	0	0
	25-30	---	---	---	---	---
	30-40	---	---	---	---	---
223:						
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Madeline	0-2	15-25	6.6-7.8	0	0	0
	2-10	25-30	6.6-7.8	0	0	0
	10-19	30-45	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
224:						
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Pearlwise	0-6	15-25	6.1-7.3	0	0	0
	6-22	10-20	6.1-7.3	0	0	0
	22-32	---	---	---	---	---
225:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Reluctan	0-2	10-20	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
226:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Reluctan	0-2	10-20	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
227:						
Ninemile	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
227:						
Rock outcrop---	0-60	---	---	---	---	---
228:						
Ninemile---	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Rubble land---	0-60	---	---	---	---	---
229:						
Ninemile---	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Westbutte---	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
230:						
Ninemile, very cobbly	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Westbutte---	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Ninemile, extremely stony---	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
231:						
Ninemile, very cobbly	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Ninemile, extremely stony---	0-4	10-20	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
232:						
Ninemile---	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
Felcher---	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
233:						
Noname---	0-3	15-25	6.1-7.3	0	0	0
	3-12	15-25	6.1-7.3	0	0	0
	12-22	---	---	---	---	---
Dickle---	0-3	25-35	6.1-7.3	0	0	0
	3-14	20-30	6.1-7.3	0	0	0
	14-24	---	---	---	---	---
234:						
Noname---	0-3	15-25	6.1-7.3	0	0	0
	3-12	15-25	6.1-7.3	0	0	0
	12-22	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
234:						
Duff	0-8	20-30	6.6-7.3	0	0	0
	8-24	15-25	6.6-7.3	0	0	0
	24-43	10-20	6.6-7.3	0	0	0
	43-53	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
235:						
Norad	0-3	10-15	6.6-7.3	0	0	0
	3-23	15-25	6.6-8.4	0	0	0
	23-34	15-20	6.6-8.4	0	0	0
	34-61	15-20	6.6-8.4	0	0.0-2.0	0
236:						
Norad	0-3	10-15	6.6-7.3	0	0	0
	3-23	15-25	6.6-8.4	0	0	0
	23-34	15-20	6.6-8.4	0	0	0
	34-61	15-20	6.6-8.4	0	0.0-2.0	0
Spangenburg	0-2	15-20	6.6-7.8	0	0	0
	2-15	30-45	7.4-8.4	0	0	0
	15-34	20-30	7.4-8.4	1-3	0.0-2.0	0
	34-60	10-20	7.4-8.4	0	0.0-2.0	0
237:						
Nuss	0-4	10-20	6.6-7.8	0	0	0
	4-12	10-20	6.6-7.8	0	0	0
	12-15	10-20	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
238:						
Nuss	0-4	10-20	6.6-7.8	0	0	0
	4-12	10-20	6.6-7.8	0	0	0
	12-15	10-20	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
239:						
Nuss	0-4	10-20	6.6-7.8	0	0	0
	4-12	10-20	6.6-7.8	0	0	0
	12-15	10-20	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
240:						
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
241:						
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
242:						
Observation----------	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
Royst----------	0-3	15-25	6.6-7.3	0	0	0
	3-7	15-25	6.6-7.3	0	0	0
	7-14	25-30	6.6-7.3	0	0	0
	14-22	25-30	6.6-7.3	0	0	0
	22-23	---	---	---	---	---
	23-33	---	---	---	---	---
Merlin----------	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
243:						
Observation----------	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
Teguro----------	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
244:						
Observation----------	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
Lambring----------	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop---------	0-60	---	---	---	---	---
245:						
Olac----------	0-4	10-15	7.4-8.4	0	0	0
	4-13	15-25	7.4-8.4	0	0	0
	13-23	---	---	---	---	---
Atlow----------	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
246:						
Opie----------	0-7	15-20	9.1-11.0	1-2	16.0-30.0	2-8
	7-10	15-20	9.1-11.0	1-2	16.0-30.0	2-8
	10-16	10-15	8.5-9.0	2-5	8.0-16.0	5-10
	16-26	10-20	8.5-9.0	2-5	8.0-16.0	5-10
	26-44	10-15	8.5-9.0	2-5	8.0-16.0	5-10
	44-64	5.0-10	7.9-8.4	0-2	2.0-4.0	0-5
247:						
Oreneva----------	0-2	10-15	6.6-7.8	0	0	0
	2-10	10-15	6.6-7.8	0	0	0
	10-21	10-15	7.4-8.4	0	0	0
	21-31	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
248:						
Outerkirk----------	0-6	5.0-10	7.9-8.4	1-2	2.0-4.0	1-4
	6-29	5.0-10	8.5-9.0	4-6	2.0-4.0	2-8
	29-51	0.0-10	8.5-9.0	5-8	2.0-4.0	2-8
	51-60	0.0-10	8.5-9.0	0-1	2.0-4.0	2-8
249:						
Outerkirk----------	0-4	5.0-10	7.9-8.4	1-2	0	1-4
	4-27	5.0-10	7.9-8.4	1-2	0.0-2.0	1-4
	27-42	0.0-10	8.5-9.0	5-8	0.0-2.0	2-8
	42-60	15-20	8.5-9.0	0-1	0.0-2.0	2-8
250:						
Outerkirk----------	0-6	5.0-10	7.9-8.4	1-2	2.0-4.0	1-4
	6-29	5.0-10	8.5-9.0	4-6	2.0-4.0	2-8
	29-51	0.0-10	8.5-9.0	5-8	2.0-4.0	2-8
	51-60	0.0-10	8.5-9.0	0-1	2.0-4.0	2-8
Defenbaugh----------	0-5	10-15	7.9-8.4	1-2	2.0-8.0	1-4
	5-29	10-20	7.4-8.4	0-2	0.0-2.0	0
	29-60	10-15	7.4-8.4	0	0	0
251:						
Ozamis---------------	0-11	15-25	7.4-8.4	0	0.0-2.0	0
	11-50	15-20	6.6-8.4	0	0.0-2.0	0
	50-60	5.0-15	6.6-8.4	0	0	0
252:						
Pearlwise----------	0-6	10-20	6.1-7.3	0	0	0
	6-22	10-20	6.1-7.3	0	0	0
	22-32	---	---	---	---	---
253:						
Pernty---------------	0-3	15-25	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
254:						
Pernty---------------	0-3	15-25	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
255:						
Pernty---------------	0-3	15-25	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
256:						
Pernty---------------	0-3	15-25	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
257:						
Pernty---------------	0-3	15-25	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
257:						
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Ninemile	0-4	20-30	6.6-7.8	0	0	0
	4-16	35-45	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
258:						
Pits	---	---	---	---	---	---
259:						
Playas	0-60	---	8.5-11.0	---	16.0-32.0	70-999
260:						
Playas	0-60	---	8.5-11.0	---	16.0-32.0	70-999
Thenarrows	0-3	5.0-15	8.5-9.5	2-5	2.0-4.0	13-25
	3-14	5.0-10	8.5-9.5	5-10	2.0-4.0	13-25
	14-22	5.0-10	8.5-9.5	10-20	1.0-2.0	13-25
	22-31	5.0-10	8.5-9.5	10-20	1.0-2.0	10-20
	31-54	2.0-10	8.5-9.5	2-15	1.0-2.0	5-15
	54-60	2.0-5.0	7.9-9.5	2-5	0.0-2.0	2-5
261:						
Poall	0-8	15-20	7.4-8.4	0	0	0
	8-17	25-35	7.4-8.4	0	0	0
	17-33	20-25	7.4-8.4	0	0	0
	33-65	20-25	7.9-9.0	1-5	0.0-2.0	0-2
262:						
Poall	0-8	15-20	7.4-8.4	0	0	0
	8-17	25-35	7.4-8.4	0	0	0
	17-33	20-25	7.4-8.4	0	0	0
	33-65	20-25	7.9-9.0	1-5	0.0-2.0	0-2
Gumble	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
263:						
Pomerening	0-4	2.0-5.0	7.4-7.8	0	0	0
	4-9	1.0-5.0	7.4-7.8	0	0	0
	9-62	1.0-5.0	7.4-8.4	0-1	0	0
264:						
Pomerening	0-4	2.0-10	7.4-7.8	0	0	0
	4-9	1.0-5.0	7.4-7.8	0	0	0
	9-62	1.0-5.0	7.4-8.4	0-1	0	0
Flank	0-1	5.0-10	7.4-7.8	0	0	0
	1-9	5.0-15	7.4-7.8	0	0	0
	9-19	---	---	---	---	---
Lava flows	0-60	---	---	---	---	---
265:						
Porterfield	0-6	10-15	6.6-7.8	0	0	0
	6-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
266:						
Porterfield----------	0-6	10-15	6.6-7.8	0	0	0
	6-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
267:						
Porterfield----------	0-6	10-15	6.6-7.8	0	0	0
	6-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Tincan---------------	0-10	15-25	6.6-7.3	0	0	0
	10-16	15-25	6.6-7.3	0	0	0
	16-26	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
268:						
Poujade--------------	0-4	10-20	6.6-7.8	0	0	0-2
	4-6	10-20	7.4-8.4	0	0	1-5
	6-13	20-40	9.1-11.0	1-5	1.0-4.0	13-50
	13-40	20-40	9.1-11.0	1-5	4.0-8.0	50-170
	40-65	10-30	8.5-11.0	1-5	1.0-4.0	30-170
269:						
Poujade--------------	0-4	10-20	6.6-7.8	0	0	0-2
	4-6	10-20	7.4-8.4	0	0	1-5
	6-13	20-40	9.1-11.0	1-5	1.0-4.0	13-50
	13-40	20-40	9.1-11.0	1-5	4.0-8.0	50-170
	40-65	10-30	8.5-11.0	1-5	1.0-4.0	30-170
270:						
Poujade--------------	0-4	10-20	6.6-7.8	0	0	0-2
	4-6	10-20	7.4-8.4	0	0	1-5
	6-13	20-40	9.1-11.0	1-5	1.0-4.0	13-50
	13-40	20-40	9.1-11.0	1-5	4.0-8.0	50-170
	40-65	10-30	8.5-11.0	1-5	1.0-4.0	30-170
Ausmus---------------	0-2	10-20	8.5-9.0	2-15	1.0-4.0	10-20
	2-9	20-35	9.1-11.0	10-20	4.0-8.0	20-100
	9-16	20-35	9.1-11.0	10-20	4.0-16.0	100-200
	16-29	20-35	9.1-11.0	10-20	16.0-32.0	300-500
	29-69	20-35	9.1-11.0	1-5	16.0-32.0	300-500
271:						
Raz------------------	0-2	5.0-10	7.4-7.8	0	0	0
	2-7	10-20	7.4-8.4	0-2	0	0
	7-12	10-20	7.9-8.4	1-3	0	0
	12-23	---	---	---	---	---
	23-33	---	---	---	---	---
272:						
Raz------------------	0-2	10-15	7.4-7.8	0	0	0
	2-7	10-20	7.4-8.4	0-2	0	0
	7-12	10-20	7.9-8.4	1-3	0	0
	12-23	---	---	---	---	---
	23-33	---	---	---	---	---
Brace----------------	0-6	8.0-13	6.6-7.8	0	0	0
	6-13	9.0-18	7.4-7.8	0	0	0
	13-32	5.0-13	7.4-8.4	1-3	0	0
	32-36	---	---	---	---	---
	36-46	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
273:						
Raz	0-2	10-15	7.4-7.8	0	0	0
	2-7	10-20	7.4-8.4	0-2	0	0
	7-12	10-20	7.9-8.4	1-3	0	0
	12-23	---	---	---	---	---
	23-33	---	---	---	---	---
Brace	0-6	8.0-13	6.6-7.8	0	0	0
	6-13	9.0-18	7.4-7.8	0	0	0
	13-32	5.0-13	7.4-8.4	1-3	0	0
	32-36	---	---	---	---	---
	36-46	---	---	---	---	---
274:						
Reallis	0-9	5.0-10	7.4-7.8	0	0	0
	9-17	5.0-10	7.4-7.8	0	0	0
	17-27	5.0-10	7.4-8.4	1-2	0.0-2.0	0
	27-60	0.0-10	7.4-8.4	1-5	0.0-2.0	0
275:						
Reallis	0-9	5.0-10	7.4-7.8	0	0	0
	9-17	5.0-10	7.4-7.8	0	0	0
	17-27	5.0-10	7.4-8.4	1-2	0.0-2.0	0
	27-60	0.0-10	7.4-8.4	1-5	0.0-2.0	0
276:						
Reese	0-4	---	9.1-9.6	5-15	16.0-32.0	100-200
	4-10	---	9.1-9.6	5-15	16.0-32.0	100-200
	10-33	---	9.1-9.6	15-30	2.0-16.0	30-140
	33-44	---	8.5-9.6	15-30	0.0-2.0	10-30
	44-60	---	8.5-9.6	15-30	0.0-2.0	5-30
277:						
Reluctan	0-2	10-20	6.6-7.8	0	0	0
	2-9	15-25	7.4-8.4	0	0	0
	9-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
278:						
Reluctan	0-2	10-20	6.6-7.8	0	0	0
	2-9	10-20	6.6-7.8	0	0	0
	9-15	15-25	7.4-8.4	0	0	0
	15-26	15-25	7.4-8.4	0	0	0
	26-36	---	---	---	---	---
279:						
Riddleranch	0-7	10-15	6.6-7.3	0	0	0
	7-16	10-20	6.6-7.8	0	0	0
	16-27	10-20	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
Lambring	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
280:						
Riddleranch	0-7	10-20	6.6-7.3	0	0	0
	7-16	10-20	6.6-7.8	0	0	0
	16-27	10-20	6.6-7.8	0	0	0
	27-37	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
281:						
Rinconflat----------	0-4	10-20	6.6-7.3	0	0	0
	4-13	10-20	6.6-7.3	0	0	0
	13-29	10-20	6.6-7.8	0	0	0
	29-61	10-20	7.9-9.0	1-5	0.0-2.0	0-2
282:						
Rio King----------	0-4	5.0-10	7.4-8.4	0	0	0
	4-17	5.0-10	7.4-8.4	0	0	0
	17-27	5.0-10	7.4-8.4	0	0	0
	27-45	5.0-10	7.4-8.4	0	0	0
	45-64	5.0-10	7.4-8.4	0	0.0-2.0	0
283:						
Rio King----------	0-4	5.0-10	7.4-8.4	0	0	0
	4-17	5.0-10	7.4-8.4	0	0	0
	17-27	5.0-10	7.4-8.4	0	0	0
	27-45	5.0-10	7.4-8.4	0	0	0
	45-64	5.0-10	7.4-8.4	0	0.0-2.0	0
Droval----------	0-4	10-20	9.1-11.0	1-2	8.0-16.0	75-120
	4-22	30-35	7.9-8.4	0-2	16.0-32.0	45-80
	22-32	35-40	6.1-6.5	0-2	16.0-32.0	45-80
	32-61	30-40	6.1-6.5	0-2	16.0-32.0	45-80
284:						
Risley----------	0-3	10-20	6.6-7.8	0	0	0
	3-25	25-45	6.6-7.8	0	0	0
	25-37	15-25	7.4-8.4	2-5	0	0
	37-39	15-25	7.4-8.4	1-5	0	0
	39-49	---	---	---	---	---
Gumble----------	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
285:						
Risley----------	0-3	15-25	6.6-7.8	0	0	0
	3-25	25-45	6.6-7.8	0	0	0
	25-37	15-25	7.4-8.4	2-5	0	0
	37-39	15-25	7.4-8.4	1-5	0	0
	39-49	---	---	---	---	---
Gumble----------	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
Torriorthents--------	0-7	---	---	---	---	---
	7-17	---	---	---	---	---
286:						
Risley----------	0-3	10-20	6.6-7.8	0	0	0
	3-25	25-45	6.6-7.8	0	0	0
	25-37	15-25	7.4-8.4	2-5	0	0
	37-39	15-25	7.4-8.4	1-5	0	0
	39-49	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
287:						
Robson	0-4	20-30	6.6-7.3	0	0	0
	4-13	30-45	6.6-7.8	0	0	0
	13-23	---	---	---	---	---
Anawalt	0-2	10-20	6.6-7.8	0	0	0
	2-11	15-25	6.6-7.8	0	0	0
	11-16	25-40	6.6-7.8	0	0	0
	16-26	---	---	---	---	---
288:						
Robson	0-4	20-30	6.6-7.3	0	0	0
	4-13	30-45	6.6-7.8	0	0	0
	13-23	---	---	---	---	---
Fourwheel	0-7	15-25	6.6-7.8	0	0	0
	7-22	30-45	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
289:						
Robson	0-4	20-30	6.6-7.3	0	0	0
	4-13	30-45	6.6-7.8	0	0	0
	13-23	---	---	---	---	---
Felcher	0-10	15-20	6.6-7.8	0	0	0
	10-22	10-20	6.6-7.8	0	0	0
	22-32	---	---	---	---	---
290:						
Roca	0-8	20-30	6.6-7.8	0	0	0
	8-16	25-40	7.4-8.4	0	0	0
	16-22	20-35	7.4-8.4	0	0	0
	22-32	---	---	---	---	---
291:						
Rock outcrop	0-60	---	---	---	---	---
Rubble land	0-60	---	---	---	---	---
292:						
Rock outcrop	0-60	---	---	---	---	---
Baconcamp	0-4	20-30	6.1-7.3	0	0	0
	4-20	15-25	6.1-7.3	0	0	0
	20-35	15-25	6.1-7.3	0	0	0
	35-45	---	---	---	---	---
293:						
Royst	0-3	15-25	6.6-7.3	0	0	0
	3-7	15-25	6.6-7.3	0	0	0
	7-14	25-30	6.6-7.3	0	0	0
	14-22	25-30	6.6-7.3	0	0	0
	22-23	---	---	---	---	---
	23-33	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
294:						
Rubble land	0-60	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
294:						
Nuss	0-4	10-20	6.6-7.8	0	0	0
	4-12	10-20	6.6-7.8	0	0	0
	12-15	10-20	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
295:						
Sagehen	0-10	10-20	6.6-7.8	0	0	0
	10-19	10-20	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
296:						
Sagehen	0-10	10-20	6.6-7.8	0	0	0
	10-19	10-20	6.6-7.8	0	0	0
	19-29	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
297:						
Sandgap	0-2	1.0-5.0	6.6-7.3	0	0	0
	2-19	1.0-3.0	6.6-7.8	0	0	0
	19-30	1.0-3.0	7.4-8.4	1-5	0	0
	30-45	1.0-3.0	7.4-8.4	0	0	0
	45-60	1.0-3.0	7.4-8.4	0	0	0
298:						
Sandgap	0-2	1.0-5.0	6.6-7.3	0	0	0
	2-19	1.0-3.0	6.6-7.8	0	0	0
	19-30	1.0-3.0	7.4-8.4	1-5	0	0
	30-45	1.0-3.0	7.4-8.4	0	0	0
	45-60	1.0-3.0	7.4-8.4	0	0	0
299:						
Seharney	0-2	10-15	6.6-7.3	0	0	0
	2-5	10-15	6.6-7.3	0	0	0
	5-11	10-15	6.6-7.8	0	0	0
	11-17	10-15	7.4-7.8	0	0	0
	17-24	---	---	---	---	---
	24-34	---	---	---	---	---
300:						
Skedaddle	0-3	15-20	7.4-7.8	0	0	0
	3-8	10-15	7.4-7.8	0	0	0
	8-11	10-15	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Atlow	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
301:						
Skedaddle	0-3	15-20	7.4-7.8	0	0	0
	3-8	10-15	7.4-7.8	0	0	0
	8-11	10-15	7.4-7.8	0	0	0
	11-21	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
301:						
Atlow	0-3	10-15	7.4-7.8	0	0	0
	3-11	15-20	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
302:						
Skedaddle	0-3	15-20	7.4-7.8	0	0	0
	3-8	10-15	7.4-7.8	0	0	0
	8-11	10-15	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
303:						
Skedaddle, south slopes	0-3	5.0-10	7.4-7.8	0	0	0
	3-8	10-15	7.4-7.8	0	0	0
	8-11	10-15	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
Skedaddle, north slopes	0-3	15-20	7.4-7.8	0	0	0
	3-8	10-15	7.4-7.8	0	0	0
	8-11	10-15	7.4-7.8	0	0	0
	11-21	---	---	---	---	---
304:						
Skidoosprings	0-11	5.0-15	8.5-11.0	2-5	2.0-10.0	30-90
	11-23	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	23-30	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	30-41	5.0-10	8.5-11.0	2-5	2.0-4.0	10-30
	41-49	---	---	---	---	---
	49-60	1.0-5.0	8.5-9.0	0	2.0-4.0	10-20
305:						
Skidoosprings	0-11	5.0-15	8.5-11.0	2-5	2.0-10.0	30-90
	11-23	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	23-30	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	30-41	5.0-10	8.5-11.0	2-5	2.0-4.0	10-30
	41-49	---	---	---	---	---
	49-60	1.0-5.0	8.5-9.0	0	2.0-4.0	10-20
306:						
Skunkfarm	0-2	15-20	7.4-7.8	0	0.0-2.0	0
	2-13	15-20	7.4-8.4	0	0.0-2.0	0
	13-18	15-20	7.4-8.4	0	0.0-2.0	0
	18-29	10-15	7.4-8.4	0	0.0-2.0	0
	29-60	5.0-10	7.4-8.4	0	0.0-2.0	0
Cumulic Haploxerolls	0-25	---	6.6-7.8	---	0	---
	25-60	---	---	---	0	---
307:						
Skunkfarm	0-2	15-20	7.4-7.8	0	0.0-2.0	0
	2-13	15-20	7.4-8.4	0	0.0-2.0	0
	13-18	15-20	7.4-8.4	0	0.0-2.0	0
	18-29	10-15	7.4-8.4	0	0.0-2.0	0
	29-60	5.0-10	7.4-8.4	0	0.0-2.0	0
Doubleo	0-3	15-25	7.4-8.4	2-5	0	0
	3-10	25-35	7.4-8.4	1-2	0	0
	10-20	30-40	7.4-8.4	1-2	0	0
	20-28	20-25	7.4-8.4	2-5	0	0
	28-45	5.0-10	7.4-8.4	1-2	0	0
	45-60	5.0-10	7.4-8.4	1-2	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
308:						
Skunkfarm----------	0-2	15-20	7.4-7.8	0	0.0-2.0	0
	2-13	15-20	7.4-8.4	0	0.0-2.0	0
	13-18	15-20	7.4-8.4	0	0.0-2.0	0
	18-29	10-15	7.4-8.4	0	0.0-2.0	0
	29-60	5.0-10	7.4-8.4	0	0.0-2.0	0
Mcbain----------	0-5	6.0-9.0	8.5-9.0	10-15	16.0-30.0	50-125
	5-22	9.0-12	7.9-9.0	15-30	4.0-8.0	13-50
	22-27	15-20	7.9-9.0	15-30	4.0-8.0	13-50
	27-37	5.0-8.0	7.9-8.4	0-1	0.0-4.0	0-5
	37-43	15-18	7.9-8.4	0-1	0.0-4.0	0-5
	43-60	7.0-10	7.9-8.4	0-1	0.0-4.0	0-5
Doubleo----------	0-3	15-25	7.4-8.4	2-5	0	0
	3-10	25-35	7.4-8.4	1-2	0	0
	10-20	30-40	7.4-8.4	1-2	0	0
	20-28	20-25	7.4-8.4	2-5	0	0
	28-45	5.0-10	7.4-8.4	1-2	0	0
	45-60	5.0-10	7.4-8.4	1-2	0	0
309:						
Skunkfarm----------	0-2	15-20	7.4-7.8	0	0.0-2.0	0
	2-13	15-20	7.4-8.4	0	0.0-2.0	0
	13-18	15-20	7.4-8.4	0	0.0-2.0	0
	18-29	10-15	7.4-8.4	0	0.0-2.0	0
	29-60	5.0-10	7.4-8.4	0	0.0-2.0	0
Skidoosprings--------	0-11	5.0-15	8.5-11.0	2-5	2.0-10.0	30-90
	11-23	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	23-30	5.0-10	8.5-11.0	2-5	2.0-10.0	60-350
	30-41	5.0-10	8.5-11.0	2-5	2.0-4.0	10-30
	41-49	---	---	---	---	---
	49-60	1.0-5.0	8.5-9.0	0	2.0-4.0	10-20
310:						
Spangenburg----------	0-2	20-25	6.6-7.8	0	0	0
	2-15	30-45	7.4-8.4	0	0	0
	15-34	20-30	7.4-8.4	1-3	0.0-2.0	0
	34-60	10-20	7.4-8.4	0	0.0-2.0	0
311:						
Spangenburg----------	0-10	20-25	6.6-7.8	0	0	0
	10-15	30-45	7.4-8.4	0	0	0
	15-34	20-30	7.4-8.4	1-3	0.0-2.0	0
	34-60	10-20	7.4-8.4	0	0.0-2.0	0
312:						
Spangenburg----------	0-10	20-25	6.6-7.8	0	0	0
	10-15	30-45	6.6-8.4	0	0	0
	15-34	20-30	7.4-8.4	1-3	0.0-2.0	0
	34-60	10-20	7.4-8.4	0	0.0-2.0	0
313:						
Srednic----------	0-2	10-20	6.6-7.3	0	0	0
	2-17	15-25	7.4-7.8	0	0	0
	17-25	15-25	7.4-8.4	1-2	0	0
	25-27	---	---	---	---	---
	27-30	---	---	---	---	---
	30-40	---	---	---	---	---
Aval----------	0-2	10-20	6.6-7.3	0	0	0
	2-18	15-25	7.4-7.8	0	0	0
	18-28	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
314:						
Stampede	0-3	15-25	6.6-7.8	0	0	0
	3-11	20-30	6.6-7.8	0	0	0
	11-19	30-40	6.6-7.8	0	0	0
	19-23	10-20	6.6-7.8	0-2	0	0
	23-33	---	---	2-5	---	---
	33-60	5.0-10	7.4-8.4	0-2	0.0-2.0	0
315:						
Swaler	0-10	10-20	6.6-7.3	0	0	0
	10-27	25-35	6.6-8.4	0	0.0-2.0	0
	27-60	20-30	6.6-8.4	0	0.0-2.0	0
316:						
Swaler	0-10	10-20	6.6-7.3	0	0	0
	10-27	25-35	6.6-8.4	0	0.0-2.0	0
	27-60	20-30	6.6-8.4	0	0.0-2.0	0
Swalesilver	0-6	10-20	6.6-7.8	0	0	0
	6-23	30-50	7.4-8.4	0	0.0-2.0	0
	23-61	10-20	7.4-9.0	0-2	2.0-4.0	0
317:						
Swalesilver	0-6	10-20	6.6-7.8	0	0	0
	6-23	30-50	7.4-8.4	0	0.0-2.0	0
	23-61	10-20	7.4-9.0	0-2	2.0-4.0	0
318:						
Swalesilver	0-6	10-20	6.6-7.8	0	0	0
	6-23	30-50	7.4-8.4	0	0.0-2.0	0
	23-61	10-20	7.4-9.0	0-2	2.0-4.0	0
319:						
Swalesilver	0-6	10-20	6.6-7.8	0	0	0
	6-23	30-50	7.4-8.4	0	0.0-2.0	0
	23-61	10-20	7.4-9.0	0-2	2.0-4.0	0
320:						
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
321:						
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
322:						
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
323:						
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Anatone, moist	0-8	15-20	6.1-7.3	0	0	0
	8-14	15-20	6.1-7.3	0	0	0
	14-24	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
324:						
Teguro	0-2	15-25	6.6-7.8	0	0	0
	2-5	15-25	6.6-7.8	0	0	0
	5-14	10-20	6.6-7.8	0	0	0
	14-24	---	---	---	---	---
Ateron	0-5	10-20	6.6-7.3	0	0	0
	5-12	20-25	6.6-7.3	0	0	0
	12-18	25-35	6.6-7.3	0	0	0
	18-28	---	---	---	---	---
325:						
Thenarrows	0-3	5.0-15	8.5-9.5	2-5	2.0-4.0	13-25
	3-14	5.0-10	8.5-9.5	5-10	2.0-4.0	13-25
	14-22	5.0-10	8.5-9.5	10-20	1.0-2.0	13-25
	22-31	5.0-10	8.5-9.5	10-20	1.0-2.0	10-20
	31-54	2.0-10	8.5-9.5	2-15	1.0-2.0	5-15
	54-60	2.0-5.0	7.9-9.5	2-5	0.0-2.0	2-5
Duckclub	0-5	5.0-10	7.9-9.0	5-10	2.0-8.0	13-30
	5-27	5.0-10	7.9-9.0	5-10	2.0-8.0	13-30
	27-32	5.0-10	8.5-9.0	5-10	1.0-4.0	13-30
	32-41	5.0-15	8.5-9.0	5-10	1.0-4.0	13-30
	41-63	5.0-10	8.5-9.0	5-10	0.0-2.0	5-15
326:						
Thenarrows	0-3	5.0-15	8.5-9.5	2-5	2.0-4.0	13-25
	3-14	5.0-10	8.5-9.5	5-10	2.0-4.0	13-25
	14-22	5.0-10	8.5-9.5	10-20	1.0-2.0	13-25
	22-31	5.0-10	8.5-9.5	10-20	1.0-2.0	10-20
	31-54	2.0-10	8.5-9.5	2-15	1.0-2.0	5-15
	54-60	2.0-5.0	7.9-9.5	2-5	0.0-2.0	2-5
Duckclub	0-5	5.0-10	7.9-9.0	5-10	2.0-8.0	13-30
	5-27	5.0-10	7.9-9.0	5-10	2.0-8.0	13-30
	27-32	5.0-10	8.5-9.0	5-10	1.0-4.0	13-30
	32-41	5.0-15	8.5-9.0	5-10	1.0-4.0	13-30
	41-63	5.0-10	8.5-9.0	5-10	0.0-2.0	5-15
Dentdraw	0-6	5.0-15	8.5-9.5	5-10	2.0-4.0	13-25
	6-9	5.0-15	8.5-9.5	5-10	2.0-4.0	13-25
	9-18	5.0-10	8.5-9.5	5-10	2.0-4.0	13-25
	18-27	10-15	8.5-9.5	2-5	1.0-2.0	13-25
	27-42	5.0-10	8.5-9.5	2-5	1.0-2.0	5-15
	42-60	2.0-5.0	7.9-9.0	2-5	0.0-2.0	2-5
327:						
Thenarrows	0-3	5.0-15	8.5-9.5	2-5	2.0-4.0	13-25
	3-14	5.0-10	8.5-9.5	5-10	2.0-4.0	13-25
	14-22	5.0-10	8.5-9.5	10-20	1.0-2.0	13-25
	22-31	5.0-10	8.5-9.5	10-20	1.0-2.0	10-20
	31-54	2.0-10	8.5-9.5	2-15	1.0-2.0	5-15
	54-60	2.0-5.0	7.9-9.5	2-5	0.0-2.0	2-5
Duckclub	0-5	5.0-10	7.9-9.0	5-10	2.0-8.0	13-30
	5-27	5.0-10	7.9-9.0	5-10	2.0-8.0	13-30
	27-32	5.0-10	8.5-9.0	5-10	1.0-4.0	13-30
	32-41	5.0-15	8.5-9.0	5-10	1.0-4.0	13-30
	41-63	5.0-10	8.5-9.0	5-10	0.0-2.0	5-15
Sandgap	0-2	1.0-5.0	6.6-7.3	0	0	0
	2-19	1.0-3.0	6.6-7.8	0	0	0
	19-30	1.0-3.0	7.4-8.4	1-5	0	0
	30-45	1.0-3.0	7.4-8.4	0	0	0
	45-60	1.0-3.0	7.4-8.4	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
328:						
Ticino	0-9	15-25	6.1-7.3	0	0	0
	9-26	10-20	6.1-7.8	0	0	0
	26-29	---	---	---	---	---
	29-39	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
329:						
Ticino	0-9	15-25	6.1-7.3	0	0	0
	9-26	10-20	6.1-7.8	0	0	0
	26-29	---	---	---	---	---
	29-39	---	---	---	---	---
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
330:						
Ticino	0-9	15-25	6.1-7.3	0	0	0
	9-26	10-20	6.1-7.8	0	0	0
	26-29	---	---	---	---	---
	29-39	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
331:						
Toll	0-5	1.0-5.0	6.6-7.8	0	0	0
	5-13	1.0-5.0	6.6-7.8	0	0	0
	13-60	1.0-5.0	6.6-7.8	0	0	0
332:						
Toll	0-5	1.0-5.0	6.6-7.8	0	0	0
	5-13	1.0-5.0	6.6-7.8	0	0	0
	13-60	1.0-5.0	6.6-7.8	0	0	0
Nevador	0-3	10-15	7.4-7.8	0	0	0
	3-7	15-20	7.4-7.8	0	0	0
	7-18	20-25	7.9-8.4	0	0.0-2.0	0
	18-32	5.0-10	7.9-8.4	1-5	0.0-2.0	0
	32-62	5.0-10	7.9-8.4	1-5	0.0-2.0	0
333:						
Torriorthents	0-7	---	---	---	---	---
	7-17	---	---	---	---	---
Gumble	0-3	10-20	7.4-7.8	0	0	0
	3-8	10-20	7.4-7.8	0	0	0
	8-14	25-35	7.4-8.4	0	0	0
	14-16	20-25	7.9-8.4	0	0	0
	16-26	---	---	---	---	---
334:						
Tumtum	0-2	15-20	7.4-8.4	0	0	0
	2-12	25-30	7.4-8.4	0	0.0-2.0	0
	12-25	---	---	---	---	---
	25-60	5.0-10	7.9-8.4	1-5	0.0-2.0	0-2
335:						
Tumtum	0-2	15-20	7.4-8.4	0	0	0
	2-12	25-30	7.4-8.4	0	0.0-2.0	0
	12-25	---	---	---	---	---
	25-60	5.0-10	7.9-8.4	1-5	0.0-2.0	0-2

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
336:						
Turpin	0-4	15-20	7.9-9.0	0-2	2.0-8.0	5-10
	4-8	10-15	7.9-9.0	0-2	2.0-8.0	10-50
	8-13	15-20	9.1-11.0	1-5	2.0-8.0	100-200
	13-38	10-15	9.1-11.0	2-10	8.0-16.0	200-300
	38-48	10-15	9.1-11.0	0-2	8.0-16.0	200-300
	48-60	10-15	9.1-11.0	0-2	8.0-16.0	200-300
337:						
Vanwyper	0-3	20-30	6.6-7.3	0	0	0
	3-15	25-40	6.6-7.8	0	0	0
	15-24	20-35	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
338:						
Vergas	0-6	10-20	6.6-7.3	0	0	0
	6-14	15-20	6.6-7.3	0	0	0
	14-20	2.0-5.0	7.4-8.4	0-2	0	0
	20-62	1.0-5.0	7.4-8.4	0-2	0	0
339:						
Vil	0-6	10-20	7.4-7.8	0	0	0
	6-9	10-20	7.4-7.8	0	0	0
	9-13	10-20	7.4-7.8	0	0	0
	13-16	10-20	7.4-7.8	0	0	0
	16-37	---	---	---	---	---
	37-60	5.0-10	7.9-8.4	1-5	0.0-2.0	0
340:						
Vining	0-2	5.0-10	6.6-7.8	0	0	0
	2-13	5.0-10	6.6-7.8	0	0	0
	13-29	5.0-10	6.6-7.8	1-3	0	0
	29-39	---	---	---	---	---
341:						
Vining	0-2	2.0-5.0	6.6-7.8	0	0	0
	2-13	5.0-10	6.6-7.8	0	0	0
	13-29	5.0-10	6.6-7.8	1-3	0	0
	29-39	---	---	---	---	---
Tuffo	0-2	2.0-5.0	7.4-7.8	0	0	0
	2-7	2.0-5.0	7.4-7.8	0	0	0
	7-17	---	---	---	---	---
342:						
Vitale	0-3	10-20	6.1-7.3	0	0	0
	3-12	10-15	6.1-7.3	0	0	0
	12-26	10-20	6.6-7.8	0	0	0
	26-36	---	---	---	---	---
343:						
Vitale	0-3	10-20	6.1-7.3	0	0	0
	3-12	10-15	6.1-7.3	0	0	0
	12-26	10-20	6.6-7.8	0	0	0
	26-36	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
344:						
Vitale	0-3	10-20	6.1-7.3	0	0	0
	3-12	10-15	6.1-7.3	0	0	0
	12-26	10-20	6.6-7.8	0	0	0
	26-36	---	---	---	---	---
Merlin	0-7	15-25	6.1-7.8	0	0	0
	7-12	20-30	6.6-7.8	0	0	0
	12-18	40-50	6.6-7.8	0	0	0
	18-29	---	---	---	---	---
Doyn	0-2	10-20	6.6-7.8	0	0	0
	2-8	10-20	7.4-8.4	0	0	0
	8-18	---	---	---	---	---
345:						
Vitale	0-3	10-20	6.1-7.3	0	0	0
	3-12	10-15	6.1-7.3	0	0	0
	12-26	10-20	6.6-7.8	0	0	0
	26-36	---	---	---	---	---
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
346:						
Vitale	0-3	10-20	6.1-7.3	0	0	0
	3-12	10-15	6.1-7.3	0	0	0
	12-26	10-20	6.6-7.8	0	0	0
	26-36	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
347:						
Voltage	0-4	5.0-10	7.9-8.4	1-5	2.0-8.0	1-5
	4-38	5.0-10	7.9-8.4	15-30	4.0-8.0	5-10
	38-64	0.0-5.0	7.9-9.0	2-10	0.0-2.0	5-10
348:						
Voltage	0-4	5.0-10	7.9-8.4	1-5	2.0-8.0	1-5
	4-38	5.0-10	7.9-8.4	15-30	4.0-8.0	5-10
	38-64	0.0-5.0	7.9-9.0	2-10	0.0-2.0	5-10
Crowcamp	0-3	20-25	6.6-7.8	0	0	0
	3-30	35-50	7.4-8.4	0-1	0	0
	30-53	10-20	7.9-8.4	0-3	0.0-2.0	0
	53-68	10-20	7.9-8.4	0	0.0-2.0	0
349:						
Voltage	0-4	15-20	7.9-8.4	1-5	2.0-8.0	1-5
	4-38	5.0-10	7.9-8.4	15-30	4.0-8.0	5-10
	38-64	0.0-5.0	7.9-9.0	2-10	0.0-2.0	5-10
Crowcamp	0-3	25-30	6.6-7.8	0	0	0
	3-30	35-50	7.4-8.4	0-1	0	0
	30-53	10-20	7.9-8.4	0-3	0.0-2.0	0
	53-68	10-20	7.9-8.4	0	0.0-2.0	0
350:						
Voltage	0-4	5.0-10	7.9-8.4	1-5	2.0-8.0	1-5
	4-38	5.0-10	7.9-8.4	15-30	4.0-8.0	5-10
	38-64	0.0-5.0	7.9-9.0	2-10	0.0-2.0	5-10
Widowspring	0-22	15-20	6.6-7.8	0	0	0
	22-43	10-20	6.6-7.8	0	0	0
	43-63	10-15	6.6-7.8	0	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
351:						
Wagontire	0-5	20-25	6.6-7.3	0	0	0
	5-15	30-35	6.6-7.8	0	0	0
	15-40	---	---	---	---	---
	40-60	5.0-10	7.4-7.8	1-2	0	0
352:						
Wagontire	0-5	20-25	6.6-7.3	0	0	0
	5-15	30-35	6.6-7.8	0	0	0
	15-40	---	---	---	---	---
	40-60	5.0-10	7.4-7.8	1-2	0	0
Vil	0-6	10-20	7.4-7.8	0	0	0
	6-9	10-20	7.4-7.8	0	0	0
	9-13	10-20	7.4-7.8	0	0	0
	13-16	10-20	7.4-7.8	0	0	0
	16-37	---	---	---	---	---
	37-60	5.0-10	7.9-8.4	1-5	0.0-2.0	0
353:						
Waspo	0-3	60-75	7.4-8.4	0-1	0.0-1.0	0-1
	3-25	60-75	7.4-8.4	0-3	0.0-1.0	0-5
	25-35	---	---	---	---	---
Poall	0-8	15-20	7.4-8.4	0	0	0
	8-17	25-35	7.4-8.4	0	0	0
	17-33	20-25	7.4-8.4	0	0	0
	33-65	20-25	7.9-9.0	1-5	0.0-2.0	0-2
354:						
Water	---	---	---	---	---	---
355:						
Welch	0-9	25-35	6.1-7.3	0	0	0
	9-60	20-40	6.1-7.8	0	0	0
356:						
Welch	0-9	25-35	6.1-7.3	0	0	0
	9-60	20-40	6.1-7.8	0	0	0
357:						
Welch	0-5	25-35	6.1-7.3	0	0	0
	5-60	20-40	6.1-7.8	0	0	0
Roschene	0-5	25-35	7.4-8.4	0-1	0	0
	5-18	20-35	7.4-8.4	0	0	0
	18-36	20-40	6.6-7.8	0	0	0
	36-62	20-30	6.6-7.8	0	0	0
Cumulic Haploxerolls	0-25	---	6.6-7.8	---	0	---
	25-60	---	---	---	0	---
358:						
Wenas	0-10	20-30	6.6-7.8	0-2	0	0
	10-21	10-20	6.6-7.8	0	0	0
	21-34	10-20	6.6-7.8	0	0	0
	34-53	10-15	6.6-7.8	0	0	0
	53-63	5.0-10	6.6-7.8	0	0	0
	63-67	1.0-5.0	6.6-7.8	0	0	0
Loupence	0-2	15-25	6.6-7.8	0	0	0
	2-24	10-25	6.6-7.8	0	0	0
	24-49	10-20	6.6-7.8	0-1	0	0
	49-60	5.0-10	6.6-7.8	0-1	0	0

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
358:						
Cumulic Haploxerolls	0-25	---	6.6-7.8	---	0	---
	25-60	---	---	---	0	---
359:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
360:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
361:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Bocker----------	0-3	10-20	6.1-7.3	0	0	0
	3-7	10-20	6.1-7.3	0	0	0
	7-17	---	---	---	---	---
362:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Lambring----------	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop---------	0-60	---	---	---	---	---
363:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
364:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop---------	0-60	---	---	---	---	---
365:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Lambring----------	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop---------	0-60	---	---	---	---	---
366:						
Westbutte----------	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---

Table 16.--Chemical Properties of the Soils--Continued

Map symbol and soil name	Depth	Cation exchange capacity	Soil reaction	Calcium carbonate	Salinity	Sodium adsorption ratio
	In	*meq/100 g*	*pH*	*Pct*	*mmhos/cm*	
366:						
Lambring	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
367:						
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Lambring	0-7	15-25	6.6-7.8	0	0	0
	7-12	10-20	6.6-7.8	0	0	0
	12-21	10-15	6.6-7.8	0	0	0
	21-60	10-15	6.6-7.8	0	0	0
Rock outcrop	0-60	---	---	---	---	---
368:						
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Observation	0-4	10-20	6.6-7.8	0	0	0
	4-8	10-15	6.6-7.8	0	0	0
	8-23	15-25	6.6-7.8	0	0	0
	23-33	---	---	---	---	---
369:						
Westbutte	0-12	15-25	6.6-7.3	0	0	0
	12-24	10-25	6.6-7.8	0	0	0
	24-34	---	---	---	---	---
Rock outcrop	0-60	---	---	---	---	---
Pernty	0-3	10-15	6.6-7.8	0	0	0
	3-8	20-30	6.6-7.8	0	0	0
	8-15	15-25	6.6-7.8	0	0	0
	15-25	---	---	---	---	---
370:						
Widowspring	0-22	15-20	6.6-7.8	0	0	0
	22-43	10-20	6.6-7.8	0	0	0
	43-63	10-15	6.6-7.8	0	0	0
371:						
Windybutte	0-7	10-15	6.6-7.8	0	0	0
	7-13	15-20	7.9-8.4	0	0.0-2.0	0
	13-17	5.0-10	7.9-9.0	2-5	0.0-2.0	0-4
	17-60	5.0-10	7.9-9.0	0-2	0.0-2.0	0-4
372:						
Wolverine	0-6	1.0-5.0	6.6-7.8	0	0	0
	6-37	1.0-5.0	6.6-7.8	0	0	0
	37-51	1.0-5.0	6.6-7.8	0	0	0
	51-70	1.0-5.0	6.6-7.8	1-2	0	0
373:						
Denied access	---	---	---	---	---	---

Table 17.--Water Features

(Depths of layers are in feet. See text for definitions of terms used in this table. Estimates of the frequency of ponding and flooding apply to the whole year rather than to individual months. Absence of an entry indicates that the feature is not a concern. The symbol > means more than; < means less than)

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
1:									
Actem	D								
		Jan-Dec	---	---	---	---	None	---	None
2:									
Actem	D								
		Jan-Dec	---	---	---	---	None	---	None
3:									
Actem	D								
		Jan-Dec	---	---	---	---	None	---	None
Robson	D								
		Jan-Dec	---	---	---	---	None	---	None
4:									
Alvodest	D								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		December	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
5:									
Alvodest	D								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		December	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
Playas	D								
		January	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	1.0-6.0	>6.0	---	---	None	---	None
		November	1.0-6.0	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
6:									
Alyan	C								
		Jan-Dec	---	---	---	---	None	---	None
7:									
Anatone	D								
		Jan-Dec	---	---	---	---	None	---	None
8:									
Anatone, moist	D								
		Jan-Dec	---	---	---	---	None	---	None
Anatone	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
9:									
Anatone	D	Jan-Dec	---	---	---	---	None	---	None
Teguro	D	Jan-Dec	---	---	---	---	None	---	None
Observation	C	Jan-Dec	---	---	---	---	None	---	None
10:									
Anatone, moist	D	Jan-Dec	---	---	---	---	None	---	None
Egyptcreek	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
11:									
Anatone, moist	D	Jan-Dec	---	---	---	---	None	---	None
Minam	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
12:									
Anatone	D	Jan-Dec	---	---	---	---	None	---	None
Teguro	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
13:									
Anatone	D	Jan-Dec	---	---	---	---	None	---	None
Westbutte	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
14:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
15:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None
Lonely	C	Jan-Dec	---	---	---	---	None	---	None
16:									
Anawalt	D	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
16:									
Oreneva	C								
		Jan-Dec	---	---	---	---	None	---	None
17:									
Anawalt	D								
		Jan-Dec	---	---	---	---	None	---	None
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
18:									
Ateron	D								
		Jan-Dec	---	---	---	---	None	---	None
19:									
Ateron	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
20:									
Ateron	D								
		Jan-Dec	---	---	---	---	None	---	None
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
21:									
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
22:									
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
23:									
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
24:									
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
Skedaddle	D								
		Jan-Dec	---	---	---	---	None	---	None
25:									
Ausmus	D								
		March	2.5-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	3.0-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
26:									
Ausmus	D								
		March	2.5-4.0	>6.0	0.0-0.5	---	Rare	---	None
		April	3.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		May	4.0-5.0	>6.0	0.0-0.5	---	Rare	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
27:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
28:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Clamp	D	Jan-Dec	---	---	---	---	None	---	None
29:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Clamp	D	Jan-Dec	---	---	---	---	None	---	None
30:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Clamp	D	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
31:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
32:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
33:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
Hackwood	B	Jan-Dec	---	---	---	---	None	---	None
34:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None
Hapgood	B	Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D	Jan-Dec	---	---	---	---	None	---	None
35:									
Baconcamp	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
35:									
Krackle	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
36:									
Berdugo	C								
		Jan-Dec	---	---	---	---	None	---	None
37:									
Berdugo	C								
		Jan-Dec	---	---	---	---	None	---	None
Catlow	B								
		Jan-Dec	---	---	---	---	None	---	None
38:									
Bigfrog	D								
		Jan-Dec	---	---	---	---	None	---	None
Brock	D								
		Jan-Dec	---	---	---	---	None	---	None
39:									
Bocker	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
40:									
Boravall	D								
		January	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
		February	3.5-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	1.5-3.0	>6.0	---	---	None	---	None
		June	2.5-4.0	>6.0	---	---	None	---	None
		July	3.0-4.0	>6.0	---	---	None	---	None
		August	4.0-5.0	>6.0	---	---	None	---	None
		September	4.0-5.0	>6.0	---	---	None	---	None
		December	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
Playas	D								
		January	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	1.0-6.0	>6.0	---	---	None	---	None
		November	1.0-6.0	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
41:									
Borobey	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
42:									
Boulder Lake	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	2.0-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	4.0-5.0	>6.0	---	---	None	---	None
43:									
Boulder Lake	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	2.0-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	4.0-5.0	>6.0	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
44:									
Boulder Lake	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	2.0-3.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	4.0-5.0	>6.0	---	---	None	---	None
Spangenburg	C								
		Jan-Dec	---	---	---	---	None	---	None
45:									
Brabble	C								
		Jan-Dec	---	---	---	---	None	---	None
Calderwood	D								
		Jan-Dec	---	---	---	---	None	---	None
46:									
Brace	C								
		Jan-Dec	---	---	---	---	None	---	None
Coztur	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
47:									
Brace	C								
		Jan-Dec	---	---	---	---	None	---	None
Vergas	C								
		Jan-Dec	---	---	---	---	None	---	None
48:									
Bruncan, thick surface	D								
		Jan-Dec	---	---	---	---	None	---	None
Bruncan, thin surface	D								
		Jan-Dec	---	---	---	---	None	---	None
49:									
Brunzell	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
50:									
Bucklake	D								
		Jan-Dec	---	---	---	---	None	---	None
51:									
Bucklake	D								
		Jan-Dec	---	---	---	---	None	---	None
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
52:									
Calderwood	D								
		Jan-Dec	---	---	---	---	None	---	None
53:									
Calderwood	D								
		Jan-Dec	---	---	---	---	None	---	None
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None
54:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
55:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
56:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
57:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
58:									
Carryback, thin surface	C								
		Jan-Dec	---	---	---	---	None	---	None
Carryback, thick surface	C								
		Jan-Dec	---	---	---	---	None	---	None
59:									
Carryback, thin surface	C								
		Jan-Dec	---	---	---	---	None	---	None
Carryback, south slopes	C								
		Jan-Dec	---	---	---	---	None	---	None
Carryback, north slopes	C								
		Jan-Dec	---	---	---	---	None	---	None
60:									
Carryback, south slopes	C								
		Jan-Dec	---	---	---	---	None	---	None
Carryback, north slopes	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
61:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
Pearlwise	B								
		Jan-Dec	---	---	---	---	None	---	None
62:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
Pearlwise	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
63:									
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
Dickle	D								
		Jan-Dec	---	---	---	---	None	---	None
64:									
Carvix	B								
		Jan-Dec	---	---	---	---	None	---	None
65:									
Clamp	D								
		Jan-Dec	---	---	---	---	None	---	None
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
Hackwood	B								
		Jan-Dec	---	---	---	---	None	---	None
66:									
Coztur	D								
		Jan-Dec	---	---	---	---	None	---	None
67:									
Crowcamp	D								
		March	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		April	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		May	5.0-5.5	>6.0	---	---	None	---	None
68:									
Crowcamp	D								
		March	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		April	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		May	5.0-5.5	>6.0	---	---	None	---	None
Ausmus	D								
		March	2.5-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	3.0-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
Poujade	B								
		March	2.5-4.0	>6.0	---	---	None	---	None
		April	2.5-4.0	>6.0	---	---	None	---	None
		May	3.5-4.0	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
69:									
Davey	A								
		Jan-Dec	---	---	---	---	None	---	None
70:									
Davey	A								
		Jan-Dec	---	---	---	---	None	---	None
Oreanna	B								
		Jan-Dec	---	---	---	---	None	---	None
71:									
Defenbaugh	B								
		Jan-Dec	---	---	---	---	None	---	None
72:									
Deppy	D								
		Jan-Dec	---	---	---	---	None	---	None
73:									
Deppy	D								
		Jan-Dec	---	---	---	---	None	---	None
Tumtum	D								
		Jan-Dec	---	---	---	---	None	---	None
74:									
Dickle	D								
		Jan-Dec	---	---	---	---	None	---	None
75:									
Dixon	B								
		Jan-Dec	---	---	---	---	None	---	None
76:									
Dixon	B								
		Jan-Dec	---	---	---	---	None	---	None
77:									
Dixon	B								
		Jan-Dec	---	---	---	---	None	---	None
78:									
Dixon	B								
		Jan-Dec	---	---	---	---	None	---	None
Droval	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
79:									
Dogmountain	C								
		Jan-Dec	---	---	---	---	None	---	None
80:									
Doyn	D								
		Jan-Dec	---	---	---	---	None	---	None
81:									
Doyn	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
81:									
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
82:									
Doyn	D								
		Jan-Dec	---	---	---	---	None	---	None
Arcia	C								
		Jan-Dec	---	---	---	---	None	---	None
83:									
Drewsey	B								
		Jan-Dec	---	---	---	---	None	---	None
84:									
Drewsey	B								
		Jan-Dec	---	---	---	---	None	---	None
85:									
Drewsey	B								
		Jan-Dec	---	---	---	---	None	---	None
Torriorthents	D								
		Jan-Dec	---	---	---	---	None	---	None
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
86:									
Droval	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
87:									
Duff	B								
		Jan-Dec	---	---	---	---	None	---	None
88:									
Duff	B								
		Jan-Dec	---	---	---	---	None	---	None
Clamp	D								
		Jan-Dec	---	---	---	---	None	---	None
89:									
Duff	B								
		Jan-Dec	---	---	---	---	None	---	None
Clamp	D								
		Jan-Dec	---	---	---	---	None	---	None
90:									
Duff	B								
		Jan-Dec	---	---	---	---	None	---	None
Hackwood	B								
		Jan-Dec	---	---	---	---	None	---	None
91:									
Edemaps	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
92:									
Edemaps	C								
		Jan-Dec	---	---	---	---	None	---	None
Carryback	C								
		Jan-Dec	---	---	---	---	None	---	None
93:									
Enko	A								
		Jan-Dec	---	---	---	---	None	---	None
94:									
Enko	A								
		Jan-Dec	---	---	---	---	None	---	None
Catlow	B								
		Jan-Dec	---	---	---	---	None	---	None
95:									
Enko	A								
		Jan-Dec	---	---	---	---	None	---	None
Catlow	B								
		Jan-Dec	---	---	---	---	None	---	None
96:									
Enko	A								
		Jan-Dec	---	---	---	---	None	---	None
Catlow	B								
		Jan-Dec	---	---	---	---	None	---	None
97:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
98:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Lambring	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
99:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
100:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
101:									
Erakatak	C								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Hapgood	B								
		Jan-Dec	---	---	---	---	None	---	None
102:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
103:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
104:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Brezniak	D								
		Jan-Dec	---	---	---	---	None	---	None
105:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
106:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Sagehen	D								
		Jan-Dec	---	---	---	---	None	---	None
107:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Sagehen	D								
		Jan-Dec	---	---	---	---	None	---	None
108:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Fitzwater	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
109:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
110:									
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
111:									
Final	D								
		May	1.0-2.5	>6.0	---	---	None	---	None
		June	1.0-2.5	>6.0	---	---	None	---	None
112:									
Fitzwater	B								
		Jan-Dec	---	---	---	---	None	---	None
Hapgood, thick surface	B								
		Jan-Dec	---	---	---	---	None	---	None
Hapgood, thin surface	B								
		Jan-Dec	---	---	---	---	None	---	None
113:									
Fitzwater	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
114:									
Flank	D								
		Jan-Dec	---	---	---	---	None	---	None
Lava flows	D								
		Jan-Dec	---	---	---	---	None	---	None
115:									
Fourwheel	D								
		Jan-Dec	---	---	---	---	None	---	None
116:									
Fourwheel	D								
		Jan-Dec	---	---	---	---	None	---	None
117:									
Freznik	D								
		Jan-Dec	---	---	---	---	None	---	None
118:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
119:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	---	---	None	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
120:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
Degarmo	D								
		March	1.0-2.5	>6.0	0.0-0.5	---	Rare	---	None
		April	1.0-2.5	>6.0	0.0-0.5	---	Rare	---	None
		May	1.0-2.5	>6.0	0.0-0.5	---	Rare	---	None
		June	1.0-2.5	>6.0	---	---	None	---	None
121:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
Housefield	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		August	1.5-2.5	>6.0	---	---	None	---	None
		September	2.5-3.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
122:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
Housefield	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		August	1.5-2.5	>6.0	---	---	None	---	None
		September	2.5-3.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
122:									
Skidoosprings	D								
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	2.0-3.0	>6.0	---	---	None	---	None
123:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
Opie	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
124:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
Skidoosprings	D								
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	2.0-3.0	>6.0	---	---	None	---	None
Opie	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
125:									
Fury	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
Widowspring	B								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		April	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		May	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		June	3.0-5.0	>6.0	---	---	None	---	None
		July	3.0-5.0	>6.0	---	---	None	---	None
		November	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None
126:									
Gaib	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
127:									
Gaib	D								
		Jan-Dec	---	---	---	---	None	---	None
Ateron	D								
		Jan-Dec	---	---	---	---	None	---	None
128:									
Gaib	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
129:									
Gilispie	D								
		Jan-Dec	---	---	---	---	None	---	None
Noname	D								
		Jan-Dec	---	---	---	---	None	---	None
130:									
Gochea	B								
		Jan-Dec	---	---	---	---	None	---	None
131:									
Goldrun	A								
		Jan-Dec	---	---	---	---	None	---	None
Alvodest	D								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		December	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
132:									
Gradon	C								
		Jan-Dec	---	---	---	---	None	---	None
133:									
Guano	D								
		Jan-Dec	---	---	---	---	None	---	None
134:									
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
135:									
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
136:									
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
Cagle	C								
		Jan-Dec	---	---	---	---	None	---	None
137:									
Hackwood	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
138:									
Hackwood	B								
		Jan-Dec	---	---	---	---	None	---	None
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
139:									
Hapgood	B								
		Jan-Dec	---	---	---	---	None	---	None
140:									
Hart Camp	D								
		Jan-Dec	---	---	---	---	None	---	None
141:									
Hart Camp	D								
		Jan-Dec	---	---	---	---	None	---	None
142:									
Helphenstein	C								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	3.5-4.5	>6.0	0.0-0.5	Long	Frequent	---	None
		December	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
Goldrun	A								
		Jan-Dec	---	---	---	---	None	---	None
143:									
Homefield	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.5-2.5	>6.0	---	---	None	---	None
		September	2.5-3.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
144:									
Housefield	D								
		January	0.0-1.0	>6.0	---	---	None	---	None
		February	0.0-1.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.5-1.5	>6.0	---	---	None	---	None
		August	2.5-3.5	>6.0	---	---	None	---	None
		September	2.5-3.5	>6.0	---	---	None	---	None
		October	1.5-2.5	>6.0	---	---	None	---	None
		November	1.5-2.5	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
145:									
Housefield	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		August	1.5-2.5	>6.0	---	---	None	---	None
		September	2.5-3.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
Doubleo	D								
		March	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		July	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
146:									
Icene	C								
		February	2.5-3.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		March	2.5-3.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		April	4.0-5.0	>6.0	0.0-0.5	Brief	Occasional	---	None
Playas	D								
		January	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	1.0-6.0	>6.0	---	---	None	---	None
		November	1.0-6.0	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
147:									
Icene	C								
		February	2.5-3.5	>6.0	0.0-0.5	---	Rare	---	None
		March	2.5-3.5	>6.0	0.0-0.5	---	Rare	---	None
		April	4.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
Playas	D								
		January	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	1.0-6.0	>6.0	---	---	None	---	None
		November	1.0-6.0	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
148:									
Jesse Camp	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
149:									
Jimgreen	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		August	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		September	1.5-2.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
150:									
Jimgreen	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		August	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		September	1.5-2.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
Housefield	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	1.5-2.5	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		July	0.0-1.0	>6.0	0.0-3.0	Long	Frequent	---	None
		August	1.5-2.5	>6.0	---	---	None	---	None
		September	2.5-3.5	>6.0	---	---	None	---	None
		October	2.5-3.5	>6.0	---	---	None	---	None
		November	2.5-3.5	>6.0	---	---	None	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
151:									
Kegler	C								
		Jan-Dec	---	---	---	---	None	---	None
152:									
Kerrfield	C								
		Jan-Dec	---	---	---	---	None	---	None
153:									
Klicker	C								
		Jan-Dec	---	---	---	---	None	---	None
154:									
Klicker	C								
		Jan-Dec	---	---	---	---	None	---	None
155:									
Krackle, north slopes	B								
		Jan-Dec	---	---	---	---	None	---	None
Krackle, south slopes	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
156:									
Krackle	B								
		Jan-Dec	---	---	---	---	None	---	None
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
157:									
Krackle	B								
		Jan-Dec	---	---	---	---	None	---	None
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
158:									
Krackle	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
159:									
Krackle	B								
		Jan-Dec	---	---	---	---	None	---	None
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
Hackwood	B								
		Jan-Dec	---	---	---	---	None	---	None
160:									
Ladycomb	D								
		Jan-Dec	---	---	---	---	None	---	None
161:									
Lambranch	D								
		Jan-Dec	---	---	---	---	None	---	None
162:									
Lambring	B								
		Jan-Dec	---	---	---	---	None	---	None
Egyptcreek	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
163:									
Lambring, thick surface	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring, thin surface	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
164:									
Lambring	B								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
165:									
Langslet	D								
		January	4.0-5.0	>6.0	---	---	None	---	None
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	2.0-3.0	>6.0	---	---	None	---	None
		April	3.0-4.0	>6.0	---	---	None	---	None
		December	4.0-5.0	>6.0	---	---	None	---	None
166:									
Lava flows	D								
		Jan-Dec	---	---	---	---	None	---	None
167:									
Lava flows	D								
		Jan-Dec	---	---	---	---	None	---	None
Flank	D								
		Jan-Dec	---	---	---	---	None	---	None
168:									
Lawen	B								
		Jan-Dec	---	---	---	---	None	---	None
169:									
Leathers	B								
		Jan-Dec	---	---	---	---	None	---	None
170:									
Leathers	B								
		Jan-Dec	---	---	---	---	None	---	None
171:									
Leemorris	C								
		Jan-Dec	---	---	---	---	None	---	None
Buckwilder	D								
		Jan-Dec	---	---	---	---	None	---	None
172:									
Leemorris	C								
		Jan-Dec	---	---	---	---	None	---	None
Buckwilder	D								
		Jan-Dec	---	---	---	---	None	---	None
173:									
Legler	B								
		March	---	---	---	---	None	---	Rare
		April	---	---	---	---	None	---	Rare
		May	---	---	---	---	None	---	Rare
		June	---	---	---	---	None	---	Rare
174:									
Locane	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
175:									
Lolak	D								
		February	4.5-5.5	---	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	3.0-4.0	>6.0	---	---	None	---	None
176:									
Lolak	D								
		February	4.5-5.5	---	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	3.0-4.0	>6.0	---	---	None	---	None
Ausmus	D								
		March	2.5-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	3.0-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
177:									
Lonely	C								
		Jan-Dec	---	---	---	---	None	---	None
Doyn	D								
		Jan-Dec	---	---	---	---	None	---	None
178:									
Lonely	C								
		Jan-Dec	---	---	---	---	None	---	None
Robson	D								
		Jan-Dec	---	---	---	---	None	---	None
179:									
Longcreek	D								
		Jan-Dec	---	---	---	---	None	---	None
Cleavage	D								
		Jan-Dec	---	---	---	---	None	---	None
180:									
Longcreek	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
181:									
Loupence	C								
		February	3.5-5.0	>6.0	---	---	None	---	None
		March	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-5.0	>6.0	---	---	None	---	None
182:									
Madeline	D								
		Jan-Dec	---	---	---	---	None	---	None
183:									
Madeline	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
184:									
Madeline	D								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
185:									
Madeline	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
186:									
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
187:									
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
Brezniak	D								
		Jan-Dec	---	---	---	---	None	---	None
Longcreek	D								
		Jan-Dec	---	---	---	---	None	---	None
188:									
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
Cagle	C								
		Jan-Dec	---	---	---	---	None	---	None
189:									
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
Risley	D								
		Jan-Dec	---	---	---	---	None	---	None
190:									
Mahoon	D								
		Jan-Dec	---	---	---	---	None	---	None
Cotant	D								
		Jan-Dec	---	---	---	---	None	---	None
191:									
Mcbain	B								
		April	2.5-5.0	>6.0	---	---	None	---	None
		May	2.5-5.0	>6.0	---	---	None	---	None
Ausmus	D								
		March	2.5-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	3.0-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
192:									
McConnel	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
193:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
194:									
Merlin, very stony	D	Jan-Dec	---	---	---	---	None	---	None
Merlin, very cobbly	D	Jan-Dec	---	---	---	---	None	---	None
195:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
Ateron	D	Jan-Dec	---	---	---	---	None	---	None
196:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
Ateron	D	Jan-Dec	---	---	---	---	None	---	None
Rubble land	A	Jan-Dec	---	---	---	---	None	---	None
197:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
Ateron	D	Jan-Dec	---	---	---	---	None	---	None
Ticino	C	Jan-Dec	---	---	---	---	None	---	None
198:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
Erakatak	C	Jan-Dec	---	---	---	---	None	---	None
Teguro	D	Jan-Dec	---	---	---	---	None	---	None
199:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
Observation	C	Jan-Dec	---	---	---	---	None	---	None
200:									
Merlin	D	Jan-Dec	---	---	---	---	None	---	None
Observation	C	Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
201:									
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
202:									
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
203:									
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
204:									
Mesman	C								
		Jan-Dec	---	---	---	---	None	---	None
205:									
Mesman	C								
		Jan-Dec	---	---	---	---	None	---	None
206:									
Mesman	C								
		Jan-Dec	---	---	---	---	None	---	None
Norad	B								
		February	4.0-6.0	>6.0	---	---	None	---	None
		March	4.0-6.0	>6.0	---	---	None	---	None
		April	4.0-6.0	>6.0	---	---	None	---	None
		May	4.0-6.0	>6.0	---	---	None	---	None
207:									
Middlebox	B								
		Jan-Dec	---	---	---	---	None	---	None
208:									
Middlebox, north slopes	B								
		Jan-Dec	---	---	---	---	None	---	None
Middlebox, south slopes	B								
		Jan-Dec	---	---	---	---	None	---	None
209:									
Minam	B								
		Jan-Dec	---	---	---	---	None	---	None
210:									
Minam	B								
		Jan-Dec	---	---	---	---	None	---	None
Welch	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		June	2.0-3.0	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
211:									
Modoc	B								
		Jan-Dec	---	---	---	---	None	---	None
212:									
Morfitt	B								
		March	---	---	0.0-0.5	Brief	Occasional	---	None
		April	---	---	0.0-0.5	Brief	Occasional	---	None
213:									
Morganhills	D								
		Jan-Dec	---	---	---	---	None	---	None
214:									
Morganhills, more than 12 percent slopes	D								
		Jan-Dec	---	---	---	---	None	---	None
Morganhills, less than 12 percent slopes	D								
		Jan-Dec	---	---	---	---	None	---	None
215:									
Mound	C								
		Jan-Dec	---	---	---	---	None	---	None
216:									
Nevador	B								
		Jan-Dec	---	---	---	---	None	---	None
217:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
218:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
219:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
220:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Carvix	B								
		Jan-Dec	---	---	---	---	None	---	None
221:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Doyn	D								
		Jan-Dec	---	---	---	---	None	---	None
222:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Edemaps	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
223:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Madeline	D								
		Jan-Dec	---	---	---	---	None	---	None
224:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Pearlwise	B								
		Jan-Dec	---	---	---	---	None	---	None
225:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None
226:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
227:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
228:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
229:									
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
230:									
Ninemile, very cobbly	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile, extremely stony	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
231:									
Ninemile, very cobbly-----	D								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile, extremely stony	D								
		Jan-Dec	---	---	---	---	None	---	None
232:									
Ninemile-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Felcher-----------	B								
		Jan-Dec	---	---	---	---	None	---	None
233:									
Noname-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Dickle-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
234:									
Noname-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Duff-----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
235:									
Norad-----------	B								
		February	4.0-6.0	>6.0	---	---	None	---	None
		March	4.0-6.0	>6.0	---	---	None	---	None
		April	4.0-6.0	>6.0	---	---	None	---	None
		May	4.0-6.0	>6.0	---	---	None	---	None
236:									
Norad-----------	B								
		February	4.0-6.0	>6.0	---	---	None	---	None
		March	4.0-6.0	>6.0	---	---	None	---	None
		April	4.0-6.0	>6.0	---	---	None	---	None
		May	4.0-6.0	>6.0	---	---	None	---	None
Spangenburg-----------	C								
		February	4.0-6.0	>6.0	---	---	None	---	None
		March	4.0-6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		April	4.0-6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	4.0-6.0	>6.0	---	---	None	---	None
237:									
Nuss-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
238:									
Nuss-----------	D								
		Jan-Dec	---	---	---	---	None	---	None
Merlin-----------	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
239:									
Nuss	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
240:									
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
241:									
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
242:									
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
Royst	C								
		Jan-Dec	---	---	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
243:									
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
244:									
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
Lambring	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
245:									
Olac	D								
		Jan-Dec	---	---	---	---	None	---	None
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
246:									
Opie	D								
		February	3.0-4.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.5-3.5	>6.0	---	---	None	---	None
247:									
Oreneva	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
248:									
Outerkirk	B								
		Jan-Dec	---	---	---	---	None	---	None
249:									
Outerkirk	B								
		Jan-Dec	---	---	---	---	None	---	None
250:									
Outerkirk	B								
		Jan-Dec	---	---	---	---	None	---	None
Defenbaugh	B								
		Jan-Dec	---	---	---	---	None	---	None
251:									
Ozamis	D								
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		June	1.5-2.5	>6.0	---	---	None	---	None
252:									
Pearlwise	B								
		Jan-Dec	---	---	---	---	None	---	None
253:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
254:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
255:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
256:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
257:									
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Ninemile	D								
		Jan-Dec	---	---	---	---	None	---	None
258:									
Pits	---								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
259:									
Playas	D								
		January	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	1.0-6.0	>6.0	---	---	None	---	None
		November	1.0-6.0	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
260:									
Playas	D								
		January	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		August	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		September	1.0-6.0	>6.0	0.0-1.0	Long	Frequent	---	None
		October	1.0-6.0	>6.0	---	---	None	---	None
		November	1.0-6.0	>6.0	---	---	None	---	None
		December	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
Thenarrows	D								
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.0-3.0	>6.0	---	---	None	---	None
261:									
Poall	D								
		Jan-Dec	---	---	---	---	None	---	None
262:									
Poall	D								
		Jan-Dec	---	---	---	---	None	---	None
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
263:									
Pomerening	A								
		Jan-Dec	---	---	---	---	None	---	None
264:									
Pomerening	A								
		Jan-Dec	---	---	---	---	None	---	None
Flank	D								
		Jan-Dec	---	---	---	---	None	---	None
Lava flows	D								
		Jan-Dec	---	---	---	---	None	---	None
265:									
Porterfield	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
266:									
Porterfield	D								
		Jan-Dec	---	---	---	---	None	---	None
267:									
Porterfield	D								
		Jan-Dec	---	---	---	---	None	---	None
Tincan	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
268:									
Poujade	B								
		March	2.5-4.0	>6.0	---	---	None	---	None
		April	2.5-4.0	>6.0	---	---	None	---	None
		May	3.5-4.0	>6.0	---	---	None	---	None
269:									
Poujade	B								
		March	2.5-4.0	>6.0	---	---	None	---	None
		April	2.5-4.0	>6.0	---	---	None	---	None
		May	3.5-4.0	>6.0	---	---	None	---	None
270:									
Poujade	B								
		March	2.5-4.0	>6.0	---	---	None	---	None
		April	2.5-4.0	>6.0	---	---	None	---	None
		May	3.5-4.0	>6.0	---	---	None	---	None
Ausmus	D								
		March	2.5-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	3.0-4.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	4.0-5.0	>6.0	0.0-0.5	Long	Frequent	---	None
271:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
272:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
Brace	C								
		Jan-Dec	---	---	---	---	None	---	None
273:									
Raz	D								
		Jan-Dec	---	---	---	---	None	---	None
Brace	C								
		Jan-Dec	---	---	---	---	None	---	None
274:									
Reallis	B								
		Jan-Dec	---	---	---	---	None	---	None
275:									
Reallis	B								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
276:									
Reese	D								
		January	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		February	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		May	2.0-3.0	>6.0	---	---	None	---	None
277:									
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None
278:									
Reluctan	C								
		Jan-Dec	---	---	---	---	None	---	None
279:									
Riddleranch	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
280:									
Riddleranch	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
281:									
Rinconflat	B								
		Jan-Dec	---	---	---	---	None	---	None
282:									
Rio King	C								
		April	3.0-5.0	>6.0	---	---	None	---	None
		May	3.0-5.0	>6.0	---	---	None	---	None
283:									
Rio King	C								
		April	3.0-5.0	>6.0	---	---	None	---	None
		May	3.0-5.0	>6.0	---	---	None	---	None
Droval	D								
		January	2.5-3.5	>6.0	---	---	None	---	None
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Frequent	---	None
		December	2.5-3.5	>6.0	---	---	None	---	None
284:									
Risley	D								
		Jan-Dec	---	---	---	---	None	---	None
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
285:									
Risley	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
285:									
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None
Torriorthents	D								
		Jan-Dec	---	---	---	---	None	---	None
286:									
Risley	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
287:									
Robson	D								
		Jan-Dec	---	---	---	---	None	---	None
Anawalt	D								
		Jan-Dec	---	---	---	---	None	---	None
288:									
Robson	D								
		Jan-Dec	---	---	---	---	None	---	None
Fourwheel	D								
		Jan-Dec	---	---	---	---	None	---	None
289:									
Robson	D								
		Jan-Dec	---	---	---	---	None	---	None
Felcher	B								
		Jan-Dec	---	---	---	---	None	---	None
290:									
Roca	D								
		Jan-Dec	---	---	---	---	None	---	None
291:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None
292:									
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Baconcamp	C								
		Jan-Dec	---	---	---	---	None	---	None
293:									
Royst	C								
		Jan-Dec	---	---	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
294:									
Rubble land	A								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
294:									
Nuss	D								
		Jan-Dec	---	---	---	---	None	---	None
Ateron	D								
		Jan-Dec	---	---	---	---	None	---	None
295:									
Sagehen	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
296:									
Sagehen	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
297:									
Sandgap	A								
		Jan-Dec	---	---	---	---	None	---	None
298:									
Sandgap	A								
		March	---	---	0.0-0.5	---	Rare	---	None
		April	---	---	0.0-0.5	---	Rare	---	None
		May	---	---	0.0-0.5	---	Rare	---	None
299:									
Seharney	D								
		Jan-Dec	---	---	---	---	None	---	None
300:									
Skedaddle	D								
		Jan-Dec	---	---	---	---	None	---	None
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
301:									
Skedaddle	D								
		Jan-Dec	---	---	---	---	None	---	None
Atlow	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
302:									
Skedaddle	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
303:									
Skedaddle, south slopes---	D								
		Jan-Dec	---	---	---	---	None	---	None
Skedaddle, north slopes---	D								
		Jan-Dec	---	---	---	---	None	---	None
304:									
Skidoosprings----------	D								
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	2.0-3.0	>6.0	---	---	None	---	None
305:									
Skidoosprings----------	D								
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	0.0-0.5	---	Rare	---	None
		May	2.0-3.0	>6.0	---	---	None	---	None
306:									
Skunkfarm----------	D								
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	0.0-2.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-2.5	>6.0	---	---	None	---	None
Cumulic Haploxerolls------	B								
		March	2.0-4.0	>6.0	0.0-0.5	Brief	Frequent	---	None
		April	2.0-4.0	>6.0	0.0-0.5	Brief	Frequent	---	None
		May	4.0-5.0	>6.0	0.0-0.5	Brief	Frequent	---	None
307:									
Skunkfarm----------	D								
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	0.0-2.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-2.5	>6.0	---	---	None	---	None
Doubleo----------	D								
		March	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		July	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
308:									
Skunkfarm----------	D								
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	0.0-2.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-2.5	>6.0	---	---	None	---	None
Mcbain----------	B								
		April	2.5-5.0	>6.0	---	---	None	---	None
		May	2.5-5.0	>6.0	---	---	None	---	None
Doubleo----------	D								
		March	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
		July	0.0-2.5	>6.0	0.0-1.0	Long	Frequent	---	None
309:									
Skunkfarm----------	D								
		March	1.0-2.0	>6.0	---	---	None	---	None
		April	0.0-2.5	>6.0	0.0-0.5	Brief	Occasional	---	None
		May	2.0-2.5	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
309:									
Skidoosprings	D								
		March	2.5-3.5	>6.0	---	---	None	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	2.0-3.0	>6.0	---	---	None	---	None
310:									
Spangenburg	C								
		Jan-Dec	---	---	---	---	None	---	None
311:									
Spangenburg	C								
		Jan-Dec	---	---	---	---	None	---	None
312:									
Spangenburg	C								
		Jan-Dec	---	---	---	---	None	---	None
313:									
Srednic	C								
		Jan-Dec	---	---	---	---	None	---	None
Aval	D								
		Jan-Dec	---	---	---	---	None	---	None
314:									
Stampede	D								
		Jan-Dec	---	---	---	---	None	---	None
315:									
Swaler	D								
		March	---	---	0.0-0.5	---	Rare	---	None
		April	---	---	0.0-0.5	---	Rare	---	None
		May	---	---	0.0-0.5	---	Rare	---	None
316:									
Swaler	D								
		March	---	---	0.0-0.5	---	Rare	---	None
		April	---	---	0.0-0.5	---	Rare	---	None
		May	---	---	0.0-0.5	---	Rare	---	None
Swalesilver	D								
		February	0.0-0.5	0.5-1.0	---	---	None	---	None
		March	0.0-0.5	0.5-1.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-0.5	0.5-1.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-0.5	0.5-1.0	0.0-1.0	Long	Frequent	---	None
317:									
Swalesilver	D								
		February	0.0-0.5	0.5-1.0	---	---	None	---	None
		March	0.0-0.5	0.5-1.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-0.5	0.5-1.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-0.5	0.5-1.0	0.0-1.0	Long	Frequent	---	None
318:									
Swalesilver	D								
		February	0.0-0.5	0.5-1.0	---	---	None	---	None
		March	0.0-0.5	0.5-1.0	0.0-0.5	---	Rare	---	None
		April	0.0-0.5	0.5-1.0	0.0-0.5	---	Rare	---	None
		May	0.0-0.5	0.5-1.0	0.0-0.5	---	Rare	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
319:									
Swalesilver	D								
		February	0.0-0.5	0.5-1.0	---	---	None	---	None
		March	0.0-0.5	0.5-1.0	0.0-0.5	---	Rare	---	None
		April	0.0-0.5	0.5-1.0	0.0-0.5	---	Rare	---	None
		May	0.0-0.5	0.5-1.0	0.0-0.5	---	Rare	---	None
320:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
321:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
322:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
323:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
Anatone, moist	D								
		Jan-Dec	---	---	---	---	None	---	None
324:									
Teguro	D								
		Jan-Dec	---	---	---	---	None	---	None
Ateron	D								
		Jan-Dec	---	---	---	---	None	---	None
325:									
Thenarrows	D								
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.0-3.0	>6.0	---	---	None	---	None
Duckclub	C								
		March	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		April	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		May	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		June	2.0-4.0	>6.0	---	---	None	---	None
326:									
Thenarrows	D								
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.0-3.0	>6.0	---	---	None	---	None
Duckclub	C								
		March	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		April	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		May	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		June	2.0-4.0	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
326:									
Dentdraw	D								
		February	1.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-2.0	>6.0	---	---	None	---	None
		July	1.0-2.0	>6.0	---	---	None	---	None
		August	1.0-3.0	>6.0	---	---	None	---	None
327:									
Thenarrows	D								
		March	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		April	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		May	0.0-1.0	>6.0	0.0-0.5	Long	Occasional	---	None
		June	2.0-3.0	>6.0	---	---	None	---	None
Duckclub	C								
		March	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		April	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		May	2.0-4.0	>6.0	0.0-0.5	---	Rare	---	None
		June	2.0-4.0	>6.0	---	---	None	---	None
Sandgap	A								
		Jan-Dec	---	---	---	---	None	---	None
328:									
Ticino	C								
		Jan-Dec	---	---	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
329:									
Ticino	C								
		Jan-Dec	---	---	---	---	None	---	None
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
330:									
Ticino	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
331:									
Toll	A								
		Jan-Dec	---	---	---	---	None	---	None
332:									
Toll	A								
		Jan-Dec	---	---	---	---	None	---	None
Nevador	B								
		Jan-Dec	---	---	---	---	None	---	None
333:									
Torriorthents	D								
		Jan-Dec	---	---	---	---	None	---	None
Gumble	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
334:									
Tumtum	D								
		Jan-Dec	---	---	---	---	None	---	None
335:									
Tumtum	D								
		Jan-Dec	---	---	---	---	None	---	None
336:									
Turpin	C								
		February	4.0-6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		March	4.0-6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
		April	4.0-6.0	>6.0	0.0-0.5	Brief	Occasional	---	None
337:									
Vanwyper	D								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
338:									
Vergas	C								
		Jan-Dec	---	---	---	---	None	---	None
339:									
Vil	D								
		Jan-Dec	---	---	---	---	None	---	None
340:									
Vining	C								
		Jan-Dec	---	---	---	---	None	---	None
341:									
Vining	C								
		Jan-Dec	---	---	---	---	None	---	None
Tuffo	D								
		Jan-Dec	---	---	---	---	None	---	None
342:									
Vitale	C								
		Jan-Dec	---	---	---	---	None	---	None
343:									
Vitale	C								
		Jan-Dec	---	---	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
344:									
Vitale	C								
		Jan-Dec	---	---	---	---	None	---	None
Merlin	D								
		Jan-Dec	---	---	---	---	None	---	None
Doyn	D								
		Jan-Dec	---	---	---	---	None	---	None
345:									
Vitale	C								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
345:									
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
346:									
Vitale	C								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
347:									
Voltage	B								
		Jan-Dec	---	---	---	---	None	---	None
348:									
Voltage	B								
		Jan-Dec	---	---	---	---	None	---	None
Crowcamp	D								
		March	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		April	2.5-3.5	>6.0	0.0-0.5	Long	Frequent	---	None
		May	5.0-5.5	>6.0	---	---	None	---	None
349:									
Voltage	B								
		Jan-Dec	---	---	---	---	None	---	None
Crowcamp	D								
		March	2.5-3.5	>6.0	0.0-0.5	---	Rare	---	None
		April	2.5-3.5	>6.0	0.0-0.5	---	Rare	---	None
		May	5.0-5.5	>6.0	---	---	None	---	None
350:									
Voltage	B								
		Jan-Dec	---	---	---	---	None	---	None
Widowspring	B								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		April	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		May	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		June	3.0-5.0	>6.0	---	---	None	---	None
		July	3.0-5.0	>6.0	---	---	None	---	None
		November	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None
351:									
Wagontire	D								
		Jan-Dec	---	---	---	---	None	---	None
352:									
Wagontire	D								
		Jan-Dec	---	---	---	---	None	---	None
Vil	D								
		Jan-Dec	---	---	---	---	None	---	None
353:									
Waspo	D								
		Jan-Dec	---	---	---	---	None	---	None
Poall	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
354:									
Water	---								
		Jan-Dec	---	---	---	---	None	---	None
355:									
Welch	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		July	1.0-2.0	>6.0	---	---	None	---	None
		August	3.0-5.0	>6.0	---	---	None	---	None
		November	0.0	>6.0	---	---	None	---	None
		December	0.0	>6.0	---	---	None	---	None
356:									
Welch	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		April	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		May	0.0-1.0	>6.0	0.0-1.0	Long	Frequent	---	None
		June	1.0-2.0	>6.0	---	---	None	---	None
		July	2.0-3.0	>6.0	---	---	None	---	None
		August	3.0-5.0	>6.0	---	---	None	---	None
		November	0.0	>6.0	---	---	None	---	None
		December	0.0	>6.0	---	---	None	---	None
357:									
Welch	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		April	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		May	0.0-1.5	>6.0	---	---	None	Brief	Frequent
		June	2.0-3.0	>6.0	---	---	None	---	None
Roschene	C								
		February	3.5-5.0	>6.0	---	---	None	---	None
		March	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-5.0	>6.0	---	---	None	---	None
Cumulic Haploxerolls	B								
		March	2.0-4.0	>6.0	---	---	None	Brief	Frequent
		April	2.0-4.0	>6.0	---	---	None	Brief	Frequent
		May	4.0-5.0	>6.0	---	---	None	Brief	Frequent
358:									
Wenas	D								
		February	2.0-3.0	>6.0	---	---	None	---	None
		March	0.5-1.0	>6.0	---	---	None	Brief	Frequent
		April	0.5-1.0	>6.0	---	---	None	Brief	Frequent
		May	0.5-1.0	>6.0	---	---	None	Brief	Frequent
		June	2.0-3.0	>6.0	---	---	None	---	None
Loupence	C								
		February	3.5-5.0	>6.0	---	---	None	---	None
		March	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		April	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		May	3.5-5.0	>6.0	---	---	None	Brief	Occasional
		June	3.5-5.0	>6.0	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
358:									
Cumulic Haploxerolls------	B								
		March	2.0-4.0	>6.0	---	---	None	Brief	Frequent
		April	2.0-4.0	>6.0	---	---	None	Brief	Frequent
		May	4.0-5.0	>6.0	---	---	None	Brief	Frequent
359:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
360:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
361:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Bocker-------------	D								
		Jan-Dec	---	---	---	---	None	---	None
362:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring-----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-------	D								
		Jan-Dec	---	---	---	---	None	---	None
363:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-------	D								
		Jan-Dec	---	---	---	---	None	---	None
364:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-------	D								
		Jan-Dec	---	---	---	---	None	---	None
365:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring-----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-------	D								
		Jan-Dec	---	---	---	---	None	---	None
366:									
Westbutte----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring-----------	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop-------	D								
		Jan-Dec	---	---	---	---	None	---	None

Table 17.--Water Features--Continued

Map symbol and soil name	Hydrologic group	Month	Water table		Ponding			Flooding	
			Upper limit	Lower limit	Surface water depth	Duration	Frequency	Duration	Frequency
			Ft	*Ft*	*Ft*				
367:									
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Lambring	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
368:									
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Observation	C								
		Jan-Dec	---	---	---	---	None	---	None
369:									
Westbutte	B								
		Jan-Dec	---	---	---	---	None	---	None
Rock outcrop	D								
		Jan-Dec	---	---	---	---	None	---	None
Pernty	D								
		Jan-Dec	---	---	---	---	None	---	None
370:									
Widowspring	B								
		January	3.0-5.0	>6.0	---	---	None	---	None
		February	3.0-5.0	>6.0	---	---	None	---	None
		March	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		April	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		May	3.0-5.0	>6.0	0.0-0.5	---	Rare	---	None
		June	3.0-5.0	>6.0	---	---	None	---	None
		July	3.0-5.0	>6.0	---	---	None	---	None
		November	3.0-5.0	>6.0	---	---	None	---	None
		December	3.0-5.0	>6.0	---	---	None	---	None
371:									
Windybutte	B								
		Jan-Dec	---	---	---	---	None	---	None
372:									
Wolverine	A								
		Jan-Dec	---	---	---	---	None	---	None
373:									
Denied access	---								
		Jan-Dec	---	---	---	---	---	---	---

Table 18.--Soil Features

(See text for definitions of terms used in this table. Absence of an entry indicates that the feature is not a concern)

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
1:									
Actem	Duripan	12-20	4-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	20-30	---	Indurated					
2:									
Actem	Duripan	12-20	4-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	20-30	---	Indurated					
3:									
Actem	Duripan	12-20	4-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	20-30	---	Indurated					
Robson	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
4:									
Alvodest	---	---	---	---	0	---	High	High	High
5:									
Alvodest	---	---	---	---	0	---	High	High	High
Playas	---	---	---	---	0	---	High	High	High
6:									
Alyan	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
7:									
Anatone	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
8:									
Anatone, moist	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Anatone	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
9:									
Anatone	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
10:									
Anatone, moist	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Egyptcreek	Bedrock (lithic)	20-36	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
11:									
Anatone, moist	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Minam	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
12:									
Anatone	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
13:									
Anatone	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
13:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
14:									
Anawalt	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	High	Low
15:									
Anawalt	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	High	Low
Lonely	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
16:									
Anawalt	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	High	Low
Oreneva	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low
17:									
Anawalt	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	High	Low
Raz	Duripan	10-18	3-18	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated					
18:									
Ateron	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
19:									
Ateron	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rubble land	---	---	---	---	0	---	---	---	---
20:									
Ateron	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
21:									
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
22:									
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
23:									
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
24:									
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Skedaddle	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low
25:									
Ausmus	---	---	---	---	0	---	Moderate	High	High
26:									
Ausmus	---	---	---	---	0	---	Moderate	High	High
27:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
28:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
28:									
Clamp	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
29:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Clamp	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
30:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Clamp	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
31:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
32:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
33:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Hackwood	---	---	---	---	0	---	Moderate	Moderate	Low
34:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Hapgood	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
35:									
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Krackle	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
36:									
Berdugo	---	---	---	---	0	---	Moderate	High	Low
37:									
Berdugo	---	---	---	---	0	---	Moderate	High	Low
Catlow	---	---	---	---	0	---	Low	High	Low
38:									
Bigfrog	Duripan	8-18	6-20	Indurated	0	---	Moderate	High	Low
Brock	Duripan	8-18	4-12	Indurated	0	---	Moderate	High	Low
39:									
Bocker	Bedrock (lithic)	4-10	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
40:									
Boravall	---	---	---	---	0	---	High	High	High

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
40:									
Playas	---	---	---	---	0	---	High	High	High
41:									
Borobey	---	---	---	---	0	---	Moderate	High	Low
42:									
Boulder Lake	---	---	---	---	0	---	Moderate	High	Low
43:									
Boulder Lake	---	---	---	---	0	---	Moderate	High	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
44:									
Boulder Lake	---	---	---	---	0	---	Moderate	High	Low
Spangenburg	---	---	---	---	0	---	Moderate	High	Low
45:									
Brabble	Duripan	20-40	3-10	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	30-50	---	Indurated					
Calderwood	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
46:									
Brace	Duripan	20-37	2-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	22-40	---	Indurated					
Coztur	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	High	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
47:									
Brace	Duripan	20-37	2-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	22-40	---	Indurated					
Vergas	---	---	---	---	0	---	Moderate	High	Low
48:									
Bruncan, thick surface	Duripan	11-20	1-12	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	13-30	---	Indurated					
Bruncan, thin surface	Duripan	11-20	1-12	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	13-30	---	Indurated					
49:									
Brunzell	Strongly contrasting textural stratification	25-40	---	Noncemented	0	---	Moderate	Moderate	Low
50:									
Bucklake	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	Moderate	Low
51:									
Bucklake	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	Moderate	Low
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Rubble land	---	---	---	---	0	---	---	---	---
52:									
Calderwood	Bedrock (lithic)	12-20	---	Indurated	0	---	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
53:									
Calderwood	Bedrock (lithic)	12-20	---	Indurated	0	---	Low	Moderate	Low
McConnel	---	---	---	---	0	---	Low	High	Low
54:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
55:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
56:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
57:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
58:									
Carryback, thin surface	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Carryback, thick surface	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
59:									
Carryback, thin surface	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Carryback, south slopes	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Carryback, north slopes	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
60:									
Carryback, south slopes	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Carryback, north slopes	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
61:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Pearlwise	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
62:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Pearlwise	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
63:									
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Dickle	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
64:									
Carvix	---	---	---	---	0	---	Low	High	Low
65:									
Clamp	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Hackwood	---	---	---	---	0	---	Moderate	Moderate	Low
66:									
Coztur	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
67:									
Crowcamp	---	---	---	---	0	---	Moderate	High	High
68:									
Crowcamp	---	---	---	---	0	---	Moderate	High	High
Ausmus	---	---	---	---	0	---	Moderate	High	High
Poujade	---	---	---	---	0	---	Moderate	High	High
69:									
Davey	---	---	---	---	0	---	Low	High	Low
70:									
Davey	---	---	---	---	0	---	Low	High	Low
Oreanna	Strongly contrasting textural stratification	20-30	---	Noncemented	0	---	Low	High	Low
71:									
Defenbaugh	---	---	---	---	0	---	Moderate	High	Low
72:									
Deppy	Duripan	10-20	4-13	Indurated	0	---	Low	High	Low
73:									
Deppy	Duripan	10-20	4-13	Indurated	0	---	Low	High	Low
Tumtum	Duripan	9-18	8-18	Indurated	0	---	Low	High	Low
74:									
Dickle	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
75:									
Dixon	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	Moderate	High	Low
76:									
Dixon	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	Moderate	High	High
77:									
Dixon	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	Moderate	High	Low
78:									
Dixon	Strongly contrasting textural stratification	30-40	---	Noncemented	0	---	Moderate	High	High
Droval	---	---	---	---	0	---	High	High	High
79:									
Dogmountain	Duripan	20-30	6-18	Indurated	0	---	Moderate	High	Low
80:									
Doyn	Bedrock (lithic)	4-10	---	Indurated	0	---	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
81:									
Doyn	Bedrock (lithic)	4-10	---	Indurated	0	---	Low	Moderate	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
82:									
Doyn	Bedrock (lithic)	4-10	---	Indurated	0	---	Low	Moderate	Low
Arcia	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
83:									
Drewsey	---	---	---	---	0	---	Low	High	Low
84:									
Drewsey	---	---	---	---	0	---	Low	High	Low
85:									
Drewsey	---	---	---	---	0	---	Low	High	Low
Torriorthents	Bedrock (paralithic)	4-14	---	Moderately cemented	0	---	Low	---	---
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
86:									
Droval	---	---	---	---	0	---	High	High	High
87:									
Duff	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
88:									
Duff	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Clamp	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
89:									
Duff	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Clamp	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
90:									
Duff	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Hackwood	---	---	---	---	0	---	Moderate	Moderate	Low
91:									
Edemaps	Duripan	20-35	2-8	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	24-40	---	Indurated					
92:									
Edemaps	Duripan	20-35	2-8	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	24-40	---	Indurated					
Carryback	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
93:									
Enko	---	---	---	---	0	---	Low	High	Low
94:									
Enko	---	---	---	---	0	---	Low	High	Low
Catlow	---	---	---	---	0	---	Low	High	Low
95:									
Enko	---	---	---	---	0	---	Low	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
95:									
Catlow	---	---	---	---	0	---	Low	High	Low
96:									
Enko	---	---	---	---	0	---	Low	High	Low
Catlow	---	---	---	---	0	---	Low	High	Low
97:									
Erakatak	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
98:									
Erakatak	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
99:									
Erakatak	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
100:									
Erakatak	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
101:									
Erakatak	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Hapgood	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
102:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
103:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
104:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Brezniak	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low
105:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
106:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Sagehen	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
107:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
107:									
Sagehen	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
108:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Fitzwater	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
109:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
110:									
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
111:									
Final	---	---	---	---	0	---	Moderate	High	High
112:									
Fitzwater	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Hapgood, thick surface	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Hapgood, thin surface	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
113:									
Fitzwater	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
114:									
Flank	Bedrock (lithic)	4-15	---	Indurated	0	---	Low	Moderate	Low
Lava flows	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
115:									
Fourwheel	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
116:									
Fourwheel	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
117:									
Freznik	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low
118:									
Fury	---	---	---	---	0	---	High	High	Low
119:									
Fury	---	---	---	---	0	---	High	High	Low
120:									
Fury	---	---	---	---	0	---	High	High	Low
Degarmo	---	---	---	---	0	---	High	High	Low
121:									
Fury	---	---	---	---	0	---	High	High	Low
Housefield	---	---	---	---	0	---	High	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
122:									
Fury	---	---	---	---	0	---	High	High	Low
Housefield	---	---	---	---	0	---	High	Moderate	Low
Skidoosprings	Duripan	40-50	1-12	Indurated	0	---	High	High	Low
123:									
Fury	---	---	---	---	0	---	High	High	Low
Opie	---	---	---	---	0	---	High	High	High
124:									
Fury	---	---	---	---	0	---	High	High	Low
Skidoosprings	Duripan	40-50	1-12	Indurated	0	---	High	High	Low
Opie	---	---	---	---	0	---	High	High	High
125:									
Fury	---	---	---	---	0	---	High	High	Low
Widowspring	---	---	---	---	0	---	High	Moderate	Low
126:									
Gaib	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
127:									
Gaib	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ateron	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
128:									
Gaib	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
129:									
Gilispie	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Noname	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
130:									
Gochea	---	---	---	---	0	---	Moderate	High	Low
131:									
Goldrun	---	---	---	---	0	---	Low	High	Low
Alvodest	---	---	---	---	0	---	High	High	High
132:									
Gradon	Duripan	20-40	6-20	Indurated	0	---	Moderate	Moderate	Low
133:									
Guano	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	High	Low
134:									
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
135:									
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
136:									
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Cagle	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	Moderate	Low
137:									
Hackwood	---	---	---	---	0	---	Moderate	Moderate	Low
138:									
Hackwood	---	---	---	---	0	---	Moderate	Moderate	Low
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
139:									
Hapgood	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
140:									
Hart Camp	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
141:									
Hart Camp	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
142:									
Helphenstein	---	---	---	---	0	---	Moderate	High	High
Goldrun	---	---	---	---	0	---	Low	High	Low
143:									
Homefield	---	---	---	---	0	---	High	Moderate	Low
144:									
Housefield	---	---	---	---	0	---	High	Moderate	Low
145:									
Housefield	---	---	---	---	0	---	High	Moderate	Low
Doubleo	---	---	---	---	0	---	High	High	Low
146:									
Icene	---	---	---	---	0	---	Moderate	High	High
Playas	---	---	---	---	0	---	High	High	High
147:									
Icene	---	---	---	---	0	---	Moderate	High	High
Playas	---	---	---	---	0	---	High	High	High
148:									
Jesse Camp	---	---	---	---	0	---	Moderate	High	Low
149:									
Jimgreen	---	---	---	---	5-15	15-20	High	Moderate	Low
150:									
Jimgreen	---	---	---	---	5-15	15-20	High	Moderate	Low
Housefield	---	---	---	---	5-15	15-20	High	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
151:									
Kegler	Duripan	25-40	2-12	Indurated	0	---	Moderate	High	Low
152:									
Kerrfield	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Moderate	High	Low
153:									
Klicker	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
154:									
Klicker	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
155:									
Krackle, north slopes	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Krackle, south slopes	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
156:									
Krackle	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
157:									
Krackle	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
158:									
Krackle	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
159:									
Krackle	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Hackwood	---	---	---	---	0	---	Moderate	Moderate	Low
160:									
Ladycomb	Bedrock (lithic)	4-10	---	Indurated	0	---	Moderate	Moderate	Low
161:									
Lambranch	---	---	---	---	0	---	Moderate	Moderate	Low
162:									
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Egyptcreek	Bedrock (lithic)	20-36	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
163:									
Lambring, thick surface	---	---	---	---	0	---	Moderate	Moderate	Low
Lambring, thin surface	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
164:									
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
164:									
Rubble land	---	---	---	---	0	---	---	---	---
165:									
Langslet	---	---	---	---	0	---	High	Moderate	Low
166:									
Lava flows	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
167:									
Lava flows	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Flank	Bedrock (lithic)	4-15	---	Indurated	0	---	Low	Moderate	Low
168:									
Lawen	---	---	---	---	0	---	Moderate	High	Low
169:									
Leathers	---	---	---	---	0	---	Moderate	High	High
170:									
Leathers	---	---	---	---	0	---	Moderate	High	High
171:									
Leemorris	Bedrock (lithic)	20-40	---	Indurated	0	---	High	Moderate	Low
Buckwilder	Bedrock (lithic)	20-40	---	Indurated	0	---	High	High	Low
172:									
Leemorris	Bedrock (lithic)	20-40	---	Indurated	0	---	High	Moderate	Low
Buckwilder	Bedrock (lithic)	20-40	---	Indurated	0	---	High	High	Low
173:									
Legler	---	---	---	---	0	---	Moderate	High	Low
174:									
Locane	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
175:									
Lolak	---	---	---	---	0	---	High	High	High
176:									
Lolak	---	---	---	---	0	---	High	High	High
Ausmus	---	---	---	---	0	---	Moderate	High	High
177:									
Lonely	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Doyn	Bedrock (lithic)	4-10	---	Indurated	0	---	Low	Moderate	Low
178:									
Lonely	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Robson	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
179:									
Longcreek	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Cleavage	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
180:									
Longcreek	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
181:									
Loupence	---	---	---	---	0	---	High	High	Low
182:									
Madeline	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
183:									
Madeline	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
184:									
Madeline	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
185:									
Madeline	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
186:									
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
187:									
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Brezniak	Bedrock (lithic)	7-12	---	Indurated	0	---	Low	Moderate	Low
Longcreek	Bedrock (lithic)	10-20	---	Indurated	0	---	Low	Moderate	Low
188:									
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Cagle	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	Moderate	Low
189:									
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Risley	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
190:									
Mahoon	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Cotant	Bedrock (paralithic)	12-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
191:									
Mcbain	---	---	---	---	0	---	Moderate	High	High
Ausmus	---	---	---	---	0	---	Moderate	High	High
192:									
McConnel	---	---	---	---	0	---	Low	High	Low
193:									
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
194:									
Merlin, very stony	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
194:									
Merlin, very cobbly----	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
195:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ateron----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
196:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ateron----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rubble land----------	---	---	---	---	0	---	---	---	---
197:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ateron----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ticino----------	Bedrock (paralithic)	20-30	---	Moderately cemented	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	22-40	---	Indurated					
198:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Erakatak----------	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Teguro----------	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
199:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Observation----------	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
200:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Observation----------	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
201:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rubble land----------	---	---	---	---	0	---	---	---	---
202:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Teguro----------	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
203:									
Merlin----------	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Teguro----------	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
204:									
Mesman----------	---	---	---	---	0	---	Moderate	High	High
205:									
Mesman----------	---	---	---	---	0	---	Moderate	High	High
206:									
Mesman----------	---	---	---	---	0	---	Moderate	High	High

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
206:									
Norad	---	---	---	---	0	---	Moderate	High	Low
207:									
Middlebox	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	Moderate	Low
208:									
Middlebox, north slopes	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	Moderate	Low
Middlebox, south slopes	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	Moderate	Low
209:									
Minam	---	---	---	---	0	---	Moderate	Moderate	Low
210:									
Minam	---	---	---	---	0	---	Moderate	Moderate	Low
Welch	---	---	---	---	0	---	High	Moderate	Low
211:									
Modoc	Duripan	20-25	5-20	Indurated	0	---	Moderate	Moderate	Low
212:									
Morfitt	---	---	---	---	0	---	Moderate	High	Low
213:									
Morganhills	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
214:									
Morganhills, more than 12 percent slopes	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
Morganhills, less than 12 percent slopes	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
215:									
Mound	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
216:									
Nevador	---	---	---	---	0	---	Moderate	High	Low
217:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
218:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
219:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
220:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Carvix	---	---	---	---	0	---	Moderate	High	Low
221:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Doyn	Bedrock (lithic)	4-10	---	Indurated	0	---	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
222:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Edemaps	Duripan	20-35	2-8	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	24-40	---	Indurated					
223:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Madeline	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
224:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Pearlwise	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
225:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Reluctan	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low
226:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Reluctan	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low
Rubble land	---	---	---	---	0	---	---	---	---
227:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
228:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rubble land	---	---	---	---	0	---	---	---	---
229:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
230:									
Ninemile, very cobbly	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile, extremely stony	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
231:									
Ninemile, very cobbly	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile, extremely stony	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
232:									
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
233:									
Noname	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
233:									
Dickle	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
234:									
Noname	Bedrock (lithic)	4-14	---	Indurated	0	---	Moderate	Moderate	Low
Duff	Bedrock (lithic)	40-60	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
235:									
Norad	---	---	---	---	0	---	Moderate	High	Low
236:									
Norad	---	---	---	---	0	---	Moderate	High	Low
Spangenburg	---	---	---	---	0	---	Moderate	High	Low
237:									
Nuss	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
238:									
Nuss	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
239:									
Nuss	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
240:									
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
241:									
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
242:									
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Royst	Bedrock (lithic)	20-35	---	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (paralithic)	20-35	---	Moderately cemented					
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
243:									
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
244:									
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
245:									
Olac	Bedrock (lithic)	10-14	---	Indurated	0	---	Moderate	High	Low
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
246:									
Opie	---	---	---	---	0	---	High	High	High
247:									
Oreneva	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low
248:									
Outerkirk	---	---	---	---	0	---	Moderate	High	Low
249:									
Outerkirk	---	---	---	---	0	---	Moderate	High	Low
250:									
Outerkirk	---	---	---	---	0	---	Moderate	High	Low
Defenbaugh	---	---	---	---	0	---	Moderate	High	Low
251:									
Ozamis	---	---	---	---	0	---	High	High	Low
252:									
Pearlwise	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
253:									
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
254:									
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
255:									
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
256:									
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
257:									
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Ninemile	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
258:									
Pits	---	---	---	---	0	---	None	---	---
259:									
Playas	---	---	---	---	0	---	High	High	High
260:									
Playas	---	---	---	---	0	---	High	High	High
Thenarrows	---	---	---	---	0	---	High	High	High
261:									
Poall	---	---	---	---	0	---	Low	High	Low
262:									
Poall	---	---	---	---	0	---	Low	High	Low
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
263:									
Pomerening	---	---	---	---	0	---	Low	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
264:									
Pomerening	---	---	---	---	0	---	Low	Moderate	Low
Flank	Bedrock (lithic)	4-15	---	Indurated	0	---	Low	Moderate	Low
Lava flows	Bedrock (lithic)	0-0	---	Indurated	0	---	None	---	---
265:									
Porterfield	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
266:									
Porterfield	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
267:									
Porterfield	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
Tincan	Bedrock (paralithic)	10-20	---	Moderately cemented	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
268:									
Poujade	---	---	---	---	0	---	Moderate	High	High
269:									
Poujade	---	---	---	---	0	---	Moderate	High	High
270:									
Poujade	---	---	---	---	0	---	Moderate	High	High
Ausmus	---	---	---	---	0	---	Moderate	High	High
271:									
Raz	Duripan	10-18	3-18	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated					
272:									
Raz	Duripan	10-18	3-18	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated					
Brace	Duripan	20-37	2-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	22-40	---	Indurated					
273:									
Raz	Duripan	10-18	3-18	Indurated	0	---	Moderate	High	Low
	Bedrock (lithic)	20-40	---	Indurated					
Brace	Duripan	20-37	2-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	22-40	---	Indurated					
274:									
Reallis	---	---	---	---	0	---	Moderate	High	Low
275:									
Reallis	---	---	---	---	0	---	Moderate	High	Low
276:									
Reese	---	---	---	---	0	---	High	High	High
277:									
Reluctan	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
278:									
Reluctan	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low
279:									
Riddleranch	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
280:									
Riddleranch	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
281:									
Rinconflat	---	---	---	---	0	---	Moderate	High	Low
282:									
Rio King	---	---	---	---	0	---	Moderate	High	Low
283:									
Rio King	---	---	---	---	0	---	Moderate	High	Low
Droval	---	---	---	---	0	---	High	High	High
284:									
Risley	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
285:									
Risley	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
Torriorthents	Bedrock (paralithic)	4-14	---	Moderately cemented	0	---	Low	---	---
286:									
Risley	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Low	High	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
287:									
Robson	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Anawalt	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	High	Low
288:									
Robson	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Fourwheel	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
289:									
Robson	Bedrock (lithic)	12-20	---	Indurated	0	---	Moderate	Moderate	Low
Felcher	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
290:									
Roca	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
291:									
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Rubble land	---	---	---	---	0	---	---	---	---
292:									
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Baconcamp	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
293:									
Royst	Bedrock (lithic)	20-35	---	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (paralithic)	20-35	---	Moderately cemented					
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
294:									
Rubble land	---	---	---	---	0	---	---	---	---
Nuss	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Ateron	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
295:									
Sagehen	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
296:									
Sagehen	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
297:									
Sandgap	---	---	---	---	0	---	Low	High	Low
298:									
Sandgap	---	---	---	---	0	---	Low	High	Low
299:									
Seharney	Duripan	10-20	5-10	Indurated	0	---	Moderate	Moderate	Low
	Bedrock (lithic)	20-30	---	Indurated					
300:									
Skedaddle	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
301:									
Skedaddle	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low
Atlow	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
302:									
Skedaddle	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
303:									
Skedaddle, south slopes	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
303:									
Skedaddle, north slopes	Bedrock (lithic)	7-12	---	Indurated	0	---	Moderate	Moderate	Low
304:									
Skidoosprings----------	Duripan	40-50	1-12	Indurated	0	---	High	High	Low
305:									
Skidoosprings----------	Duripan	40-50	1-12	Indurated	0	---	High	High	Low
306:									
Skunkfarm--------------	---	---	---	---	0	---	High	High	Low
Cumulic Haploxerolls---	---	---	---	---	0	---	Moderate	Moderate	Low
307:									
Skunkfarm--------------	---	---	---	---	0	---	High	High	Low
Doubleo----------------	---	---	---	---	0	---	High	High	Low
308:									
Skunkfarm--------------	---	---	---	---	0	---	High	High	Low
Mcbain-----------------	---	---	---	---	0	---	Moderate	High	High
Doubleo----------------	---	---	---	---	0	---	High	High	Low
309:									
Skunkfarm--------------	---	---	---	---	0	---	High	High	Low
Skidoosprings----------	Duripan	40-50	1-12	Indurated	0	---	High	High	Low
310:									
Spangenburg------------	---	---	---	---	0	---	Moderate	High	Low
311:									
Spangenburg------------	---	---	---	---	0	---	Moderate	High	Low
312:									
Spangenburg------------	---	---	---	---	0	---	Moderate	High	Low
313:									
Srednic----------------	Duripan	20-40	3-10	Indurated	0	---	Low	Moderate	Low
	Bedrock (lithic)	25-50	---	Indurated					
Aval-------------------	Bedrock (lithic)	10-20	---	Indurated	0	---	Low	Moderate	Low
314:									
Stampede---------------	Duripan	20-30	5-10	Indurated	0	---	Moderate	High	Low
315:									
Swaler-----------------	---	---	---	---	0	---	Moderate	High	Low
316:									
Swaler-----------------	---	---	---	---	0	---	Moderate	High	Low
Swalesilver------------	---	---	---	---	0	---	Moderate	High	Low
317:									
Swalesilver------------	---	---	---	---	0	---	Moderate	High	Low
318:									
Swalesilver------------	---	---	---	---	0	---	Moderate	High	Low
319:									
Swalesilver------------	---	---	---	---	0	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
320:									
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
321:									
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
322:									
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
323:									
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Anatone, moist	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
324:									
Teguro	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
Ateron	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
325:									
Thenarrows	---	---	---	---	0	---	High	High	High
Duckclub	---	---	---	---	0	---	Moderate	High	Low
326:									
Thenarrows	---	---	---	---	0	---	High	High	High
Duckclub	---	---	---	---	0	---	Moderate	High	Low
Dentdraw	---	---	---	---	0	---	High	High	Low
327:									
Thenarrows	---	---	---	---	0	---	High	High	High
Duckclub	---	---	---	---	0	---	Moderate	High	Low
Sandgap	---	---	---	---	0	---	Low	High	Low
328:									
Ticino	Bedrock (paralithic) Bedrock (lithic)	20-30 22-40	--- ---	Moderately cemented Indurated	0	---	Moderate	Moderate	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
329:									
Ticino	Bedrock (paralithic) Bedrock (lithic)	20-30 22-40	--- ---	Moderately cemented Indurated	0	---	Moderate	Moderate	Low
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
330:									
Ticino	Bedrock (paralithic) Bedrock (lithic)	20-30 22-40	--- ---	Moderately cemented Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
331:									
Toll	---	---	---	---	0	---	Low	Moderate	Low
332:									
Toll	---	---	---	---	0	---	Low	Moderate	Low
Nevador	---	---	---	---	0	---	Moderate	High	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
333:									
Torriorthents	Bedrock (paralithic)	4-14	---	Moderately cemented	0	---	Low	---	---
Gumble	Bedrock (paralithic)	14-20	---	Moderately cemented	0	---	Low	High	Low
334:									
Tumtum	Duripan	9-18	8-18	Indurated	0	---	Moderate	High	Low
335:									
Tumtum	Duripan	9-18	8-18	Indurated	0	---	Moderate	High	Low
336:									
Turpin	---	---	---	---	0	---	Moderate	High	Low
337:									
Vanwyper	Bedrock (lithic)	20-40	---	Indurated	0	---	Low	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
338:									
Vergas	---	---	---	---	0	---	Moderate	High	Low
339:									
Vil	Duripan	15-20	20-30	Indurated	0	---	Moderate	Moderate	Low
340:									
Vining	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
341:									
Vining	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Tuffo	Bedrock (paralithic)	7-14	---	Moderately cemented	0	---	Low	Moderate	Low
342:									
Vitale	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
343:									
Vitale	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
344:									
Vitale	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Merlin	Bedrock (lithic)	10-20	---	Indurated	0	---	Moderate	Moderate	Low
Doyn	Bedrock (lithic)	4-10	---	Indurated	0	---	Low	Moderate	Low
345:									
Vitale	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
346:									
Vitale	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
347:									
Voltage	---	---	---	---	0	---	Moderate	High	High
348:									
Voltage	---	---	---	---	0	---	Moderate	High	High

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
348:									
Crowcamp	---	---	---	---	0	---	Moderate	High	High
349:									
Voltage	---	---	---	---	0	---	Moderate	High	High
Crowcamp	---	---	---	---	0	---	Moderate	High	High
350:									
Voltage	---	---	---	---	0	---	Moderate	High	High
Widowspring	---	---	---	---	0	---	High	Moderate	Low
351:									
Wagontire	Duripan	14-20	15-30	Indurated	0	---	Moderate	High	Low
352:									
Wagontire	Duripan	14-20	15-30	Indurated	0	---	Moderate	High	Low
Vil	Duripan	15-20	20-30	Indurated	0	---	Moderate	Moderate	Low
353:									
Waspo	Bedrock (paralithic)	20-40	---	Moderately cemented	0	---	Moderate	High	Low
Poall	---	---	---	---	0	---	Low	High	Low
354:									
Water	---	---	---	---	---	---	---	---	---
355:									
Welch	---	---	---	---	0	---	High	Moderate	Low
356:									
Welch	---	---	---	---	0	---	High	Moderate	Low
357:									
Welch	---	---	---	---	0	---	High	Moderate	Low
Roschene	---	---	---	---	0	---	Moderate	High	Low
Cumulic Haploxerolls	---	---	---	---	0	---	Moderate	Moderate	Low
358:									
Wenas	---	---	---	---	0	---	High	Moderate	Low
Loupence	---	---	---	---	0	---	High	High	Low
Cumulic Haploxerolls	---	---	---	---	0	---	Moderate	Moderate	Low
359:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
360:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
361:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Bocker	Bedrock (lithic)	4-10	---	Indurated	0	---	Moderate	Moderate	Low
362:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low

Table 18.--Soil Features--Continued

Map symbol and soil name	Restrictive layer				Subsidence		Potential for frost action	Risk of corrosion	
	Kind	Depth to top	Thickness	Hardness	Initial	Total		Uncoated steel	Concrete
		In	*In*		*In*	*In*			
362:									
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
363:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
364:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
365:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
366:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
367:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Lambring	---	---	---	---	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
368:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Observation	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
369:									
Westbutte	Bedrock (lithic)	20-40	---	Indurated	0	---	Moderate	Moderate	Low
Rock outcrop	Bedrock (lithic)	0-0	---	Indurated	0	---	---	---	---
Pernty	Bedrock (lithic)	14-20	---	Indurated	0	---	Moderate	Moderate	Low
370:									
Widowspring	---	---	---	---	0	---	High	Moderate	Low
371:									
Windybutte	---	---	---	---	0	---	Low	High	Low
372:									
Wolverine	---	---	---	---	0	---	Low	Moderate	Low
373:									
Denied access	---	---	---	---	---	---	---	---	---

Table 19.--Classification of the Soils

(An asterisk in the first column indicates a taxadjunct to the series. See text for a description of those characteristics that are outside the range of the series)

Soil name	Family or higher taxonomic class
Actem	Clayey, montmorillonitic, frigid, shallow Xeric Argidurids
Alvodest	Fine, montmorillonitic, mesic Sodic Aquicambids
Alyan	Fine, montmorillonitic, frigid Aridic Argixerolls
Anatone	Loamy-skeletal, mixed, frigid Lithic Haploxerolls
Anawalt	Clayey, montmorillonitic, frigid Lithic Xeric Haplargids
Arcia	Fine, montmorillonitic, frigid Pachic Argixerolls
Ateron	Clayey-skeletal, montmorillonitic, frigid Lithic Argixerolls
Atlow	Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids
Ausmus	Fine-silty, mixed, frigid Aquic Natrargids
Aval	Ashy, frigid Lithic Xeric Haplocambids
Baconcamp	Loamy-skeletal, mixed Pachic Cryoborolls
Berdugo	Fine, montmorillonitic, mesic Xeric Paleargids
Bigfrog	Loamy, mixed, mesic, shallow Xeric Argidurids
Bocker	Loamy-skeletal, mixed, frigid Lithic Haploxerolls
Boravall	Fine, montmorillonitic (calcareous), mesic Aeric Halaquepts
*Borobey	Ashy, frigid Vitritorrandic Haploxerolls
Boulder Lake	Fine, montmorillonitic, frigid Xeric Epiaquerts
Brabble	Fine-loamy, mixed, mesic Xeric Haplodurids
Brace	Fine-loamy, mixed, frigid Xeric Argidurids
Brezniak	Clayey, montmorillonitic, mesic Lithic Argixerolls
Brock	Loamy-skeletal, mixed, mesic, shallow Xeric Argidurids
Bruncan	Loamy, mixed, mesic, shallow Xeric Argidurids
Brunzell	Loamy-skeletal, mixed, frigid Typic Haploxerolls
Bucklake	Fine, montmorillonitic, mesic Aridic Argixerolls
Buckwilder	Very-fine, montmorillonitic Argic Vertic Cryoborolls
*Cagle	Fine, montmorillonitic, mesic Aridic Argixerolls
Calderwood	Loamy-skeletal, mixed, mesic Lithic Xeric Haplocambids
Carryback	Fine, montmorillonitic, frigid Vertic Palexerolls
Carvix	Fine-loamy, mixed, frigid Aridic Haploxerolls
Catlow	Loamy-skeletal, mixed, mesic Durinodic Xeric Haplocambids
Clamp	Loamy-skeletal, mixed Lithic Cryoborolls
Cleavage	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Cotant	Clayey, montmorillonitic, frigid, shallow Aridic Argixerolls
Coztur	Loamy, mixed, frigid Lithic Xeric Haplargids
Crowcamp	Fine, montmorillonitic, frigid Vertic Palexerolls
Cumulic Haploxerolls	Cumulic Haploxerolls
Davey	Sandy, mixed, mesic Xeric Haplocambids
Defenbaugh	Fine-loamy, mixed, mesic Typic Haplocambids
*Degarmo	Fine-loamy over sandy or sandy-skeletal, mixed, frigid Cumulic Endoaquolls
Dentdraw	Fine-loamy, mixed (calcareous), frigid Fluvaquentic Endoaquolls
Deppy	Loamy, mixed, mesic, shallow Argidic Argidurids
Dickle	Loamy, mixed Lithic Cryoborolls
Dixon	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Xeric Haplocambids
Dogmountain	Ashy-skeletal, frigid Vitrixerandic Haplodurids
Doubleo	Clayey over loamy, montmorillonitic, calcareous, frigid Fluvaquentic Vertic Endoaquolls
Doyn	Loamy, mixed, frigid Lithic Haploxerolls
Drewsey	Coarse-loamy, mixed, mesic Xeric Haplocambids
Droval	Fine, montmorillonitic, mesic Sodic Aquicambids
Duckclub	Coarse-loamy, mixed, frigid Sodic Aquicambids
Duff	Fine-loamy, mixed Pachic Cryoborolls
Edemaps	Fine, montmorillonitic, frigid Argiduridic Durixerolls
Egyptcreek	Loamy-skeletal, mixed, frigid Ultic Haploxerolls
Enko	Coarse-loamy, mixed, mesic Durinodic Xeric Haplocambids
Erakatak	Clayey-skeletal, montmorillonitic, frigid Typic Argixerolls
Felcher	Loamy-skeletal, mixed, mesic Xeric Haplocambids
Final	Fine, montmorillonitic, mesic Vertic Natrargids
Fitzwater	Loamy-skeletal, mixed, frigid Aridic Haploxerolls
Flank	Ashy-skeletal, nonacid, frigid Lithic Xeric Torriorthents
Fourwheel	Fine, montmorillonitic, frigid Vertic Paleargids
Freznik	Fine, montmorillonitic, frigid Xeric Paleargids
*Fury	Fine-silty, mixed, frigid Cumulic Endoaquolls
Gaib	Loamy-skeletal, mixed, frigid Lithic Ultic Argixerolls
Gilispie	Loamy, mixed Argic Lithic Cryoborolls
Gochea	Fine-loamy, mixed, frigid Argiduridic Argixerolls

Table 19.--Classification of the Soils--Continued

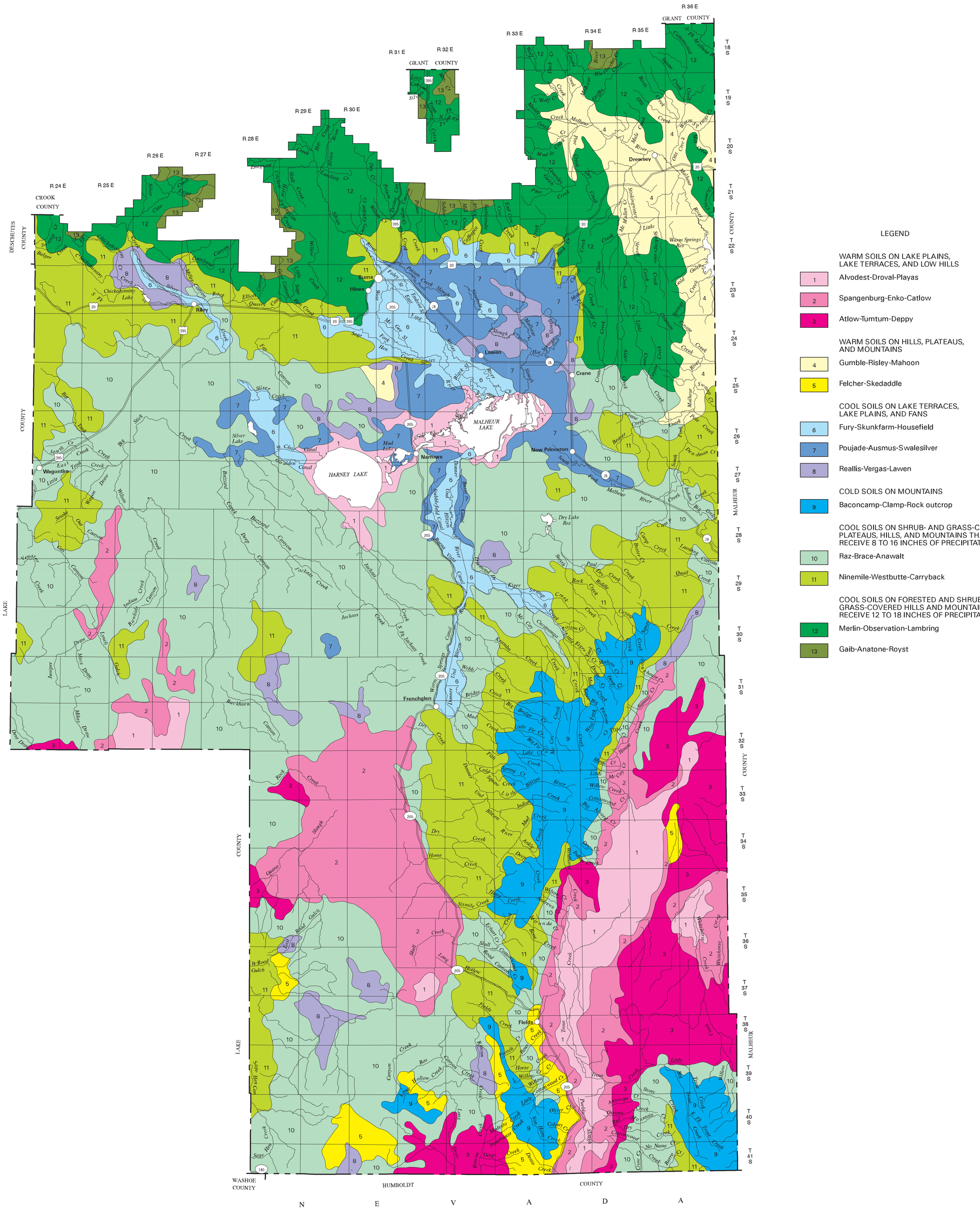
Soil name	Family or higher taxonomic class
Goldrun	Mixed, mesic Xeric Torripsamments
Gradon	Fine-loamy, mixed, frigid Argiduridic Durixerolls
Guano	Loamy, mixed, frigid, shallow Xeric Haplargids
Gumble	Clayey, montmorillonitic, mesic, shallow Xeric Haplargids
Hackwood	Fine-loamy, mixed Pachic Cryoborolls
Hapgood	Loamy-skeletal, mixed Pachic Cryoborolls
Hart Camp	Loamy, mixed, frigid, shallow Aridic Argixerolls
Helphenstein	Fine-loamy, mixed, mesic Sodic Aquicambids
Homefield	Fine-silty, mixed (calcareous), frigid Cumulic Endoaquolls
Housefield	Fine-silty, mixed, frigid Cumulic Endoaquolls
Icene	Fine-loamy, mixed, mesic Typic Aquisalids
Jesse Camp	Fine-silty, mixed, frigid Xeric Haplocambids
Jimgreen	Euic Hemic Borosaprists
Kegler	Fine-loamy, mixed, frigid Haploduridic Durixerolls
Kerrfield	Coarse-loamy, mixed, mesic Durinodic Xeric Haplocambids
Klicker	Loamy-skeletal, mixed, frigid Ultic Argixerolls
Krackle	Loamy-skeletal, mixed Typic Cryoborolls
Ladycomb	Loamy, mixed, mesic Lithic Haploxerolls
Lambranch	Clayey-skeletal, montmorillonitic, mesic Xeric Haplargids
Lambring	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
*Langslet	Fine, montmorillonitic, frigid Xeric Aquicambids
Lawen	Coarse-loamy, mixed, frigid Aridic Calcic Argixerolls
Leathers	Coarse-loamy, mixed, mesic Sodic Xeric Haplocambids
Leemorris	Fine, montmorillonitic Argic Pachic Cryoborolls
Legler	Fine-loamy, mixed, mesic Xeric Haplocambids
Locane	Clayey-skeletal, montmorillonitic, frigid Lithic Xeric Haplargids
Lolak	Fine, montmorillonitic (calcareous), frigid Vertic Halaquepts
Lonely	Fine-loamy, mixed, frigid Xeric Haplocambids
Longcreek	Clayey-skeletal, montmorillonitic, mesic Lithic Argixerolls
Loupence	Fine-silty, mixed, mesic Cumulic Haploxerolls
Madeline	Clayey, montmorillonitic, frigid Lithic Argixerolls
Mahoon	Fine, montmorillonitic, mesic Aridic Palexerolls
Mcbain	Fine-loamy, mixed, frigid Sodic Xeric Haplocalcids
McConnel	Sandy-skeletal, mixed, mesic Xeric Haplocambids
Merlin	Clayey, montmorillonitic, frigid Lithic Argixerolls
Mesman	Fine-loamy, mixed, mesic Xeric Natrargids
Middlebox	Ashy-skeletal, nonacid, frigid Vitrandic Torriorthents
*Minam	Fine-loamy, mixed, frigid Vitrandic Haploxerolls
Modoc	Fine-loamy, mixed, mesic Argiduridic Durixerolls
Morfitt	Fine-loamy, mixed, mesic Xeric Haplargids
Morganhills	Ashy, nonacid, frigid, shallow Vitrandic Torriorthents
Mound	Clayey-skeletal, montmorillonitic, frigid Pachic Ultic Argixerolls
Nevador	Fine-loamy, mixed, mesic Durinodic Xeric Haplargids
Ninemile	Clayey, montmorillonitic, frigid Lithic Argixerolls
Noname	Loamy, mixed Lithic Cryochrepts
Norad	Fine-silty, mixed, mesic Xeric Haplargids
Nuss	Loamy, mixed, frigid Lithic Haploxerolls
Observation	Fine, montmorillonitic, frigid Typic Argixerolls
Olac	Loamy-skeletal, mixed, mesic Lithic Xeric Haplargids
Opie	Fine-silty, mixed (calcareous), frigid Cumulic Endoaquolls
Oreanna	Fine-loamy over sandy or sandy-skeletal, mixed, mesic Typic Haplocambids
Oreneva	Loamy-skeletal, mixed, frigid Xeric Haplocambids
Outerkirk	Coarse-loamy, mixed, mesic Durinodic Haplocalcids
Ozamis	Fine-loamy, mixed, mesic Fluvaquentic Endoaquolls
Pearlwise	Fine-loamy, mixed, frigid Pachic Haploxerolls
Pernty	Loamy-skeletal, mixed, frigid Lithic Argixerolls
Poall	Fine, montmorillonitic, mesic Xeric Paleargids
Pomerening	Ashy, nonacid, frigid Vitrandic Torriorthents
Porterfield	Loamy, mixed, nonacid, mesic, shallow Xeric Torriorthents
Poujade	Fine-loamy, mixed, frigid Durinodic Xeric Natrargids
Raz	Loamy, mixed, frigid, shallow Xeric Haplodurids
Reallis	Coarse-loamy, mixed, frigid Durinodic Xeric Haplocambids
Reese	Fine-loamy, mixed (calcareous), mesic Aeric Halaquepts
Reluctan	Fine-loamy, mixed, frigid Aridic Argixerolls
Riddleranch	Loamy-skeletal, mixed, frigid Aridic Haploxerolls
Rinconflat	Loamy-skeletal, mixed, frigid Xeric Haplocambids
Rio King	Coarse-loamy, mixed, mesic Aridic Haploxerolls
Risley	Fine, montmorillonitic, mesic Xeric Haplargids
Robson	Clayey-skeletal, montmorillonitic, frigid Lithic Xeric Haplargids

Table 19.--Classification of the Soils--Continued

Soil name	Family or higher taxonomic class
Roca	Clayey-skeletal, montmorillonitic, frigid Xeric Haplargids
Roschene	Fine-loamy, mixed, frigid Cumulic Haploxerolls
Royst	Clayey-skeletal, montmorillonitic, frigid Pachic Argixerolls
Sagehen	Loamy-skeletal, mixed, frigid Lithic Xeric Haplocambids
Sandgap	Mixed, frigid Haploduridic Xeric Torripsamments
Seharney	Loamy-skeletal, mixed, frigid, shallow Xerochreptic Haplodurids
Skedaddle	Loamy-skeletal, mixed, nonacid, mesic Lithic Xeric Torriorthents
Skidoosprings	Coarse-loamy, mixed (calcareous), frigid Aeric Halaquepts
Skunkfarm	Fine-loamy, mixed, frigid Typic Endoaquolls
Spangenburg	Fine, montmorillonitic, mesic Xeric Paleargids
Srednic	Ashy, frigid Vitrixerandic Haplodurids
Stampede	Fine, montmorillonitic, frigid Vertic Durixerolls
Swaler	Fine, montmorillonitic, frigid Xeric Paleargids
Swalesilver	Fine, montmorillonitic, frigid Aquic Palexeralfs
Teguro	Loamy, mixed, frigid Lithic Argixerolls
Thenarrows	Coarse-loamy, mixed (calcareous), frigid Typic Halaquepts
Ticino	Fine-loamy, mixed, frigid Typic Argixerolls
Tincan	Loamy, mixed, mesic, shallow Aridic Haploxerolls
Toll	Mixed, mesic Xeric Torripsamments
Torriorthents	Torriorthents
Tuffo	Ashy, nonacid, mesic, shallow Vitrandic Torriorthents
Tumtum	Loamy, mixed, mesic, shallow Typic Argidurids
Turpin	Fine-loamy, mixed, mesic Sodic Xeric Haplocambids
Vanwyper	Clayey-skeletal, montmorillonitic, mesic Xeric Haplargids
Vergas	Fine-loamy over sandy or sandy-skeletal, mixed, frigid Durinodic Xeric Haplargids
Vil	Loamy, mixed, frigid, shallow Argiduridic Durixerolls
Vining	Coarse-loamy, mixed, mesic Xeric Haplocambids
Vitale	Loamy-skeletal, mixed, frigid Typic Argixerolls
Voltage	Coarse-loamy, mixed, frigid Xeric Haplocalcids
Wagontire	Clayey, montmorillonitic, frigid, shallow Argiduridic Durixerolls
*Waspo	Fine, montmorillonitic, mesic Aridic Haploxererts
Welch	Fine-loamy, mixed, frigid Cumulic Endoaquolls
Wenas	Fine-loamy, mixed, mesic Cumulic Endoaquolls
Westbutte	Loamy-skeletal, mixed, frigid Pachic Haploxerolls
Widowspring	Fine-silty, mixed, frigid Cumulic Haploxerolls
Windybutte	Fine-silty, mixed, frigid Argiduridic Argixerolls
Wolverine	Mixed, frigid Xeric Torripsamments

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LEGEND

WARM SOILS ON LAKE PLAINS, LAKE TERRACES, AND LOW HILLS

1 Alvodest-Droval-Playas

2 Spangenburg-Enko-Catlow

3 Atlow-Tumtum-Deppy

WARM SOILS ON HILLS, PLATEAUS, AND MOUNTAINS

4 Gumble-Risley-Mahoon

5 Felcher-Skedaddle

COOL SOILS ON LAKE TERRACES, LAKE PLAINS, AND FANS

6 Fury-Skunkfarm-Housefield

7 Poujade-Ausmus-Swalesilver

8 Reallis-Vergas-Lawen

COLD SOILS ON MOUNTAINS

9 Baconcamp-Clamp-Rock outcrop

COOL SOILS ON SHRUB- AND GRASS-COVERED PLATEAUS, HILLS, AND MOUNTAINS THAT RECEIVE 8 TO 16 INCHES OF PRECIPITATION

10 Raz-Brace-Anawalt

11 Ninemile-Westbutte-Carryback

COOL SOILS ON FORESTED AND SHRUB- AND GRASS-COVERED HILLS AND MOUNTAINS THAT RECEIVE 12 TO 18 INCHES OF PRECIPITATION

12 Merlin-Observation-Lambring

13 Gaib-Anatone-Royst

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

N

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
UNITED STATES FISH AND WILDLIFE SERVICE
BUREAU OF INDIAN AFFAIRS
OREGON AGRICULTURAL EXPERIMENT STATION

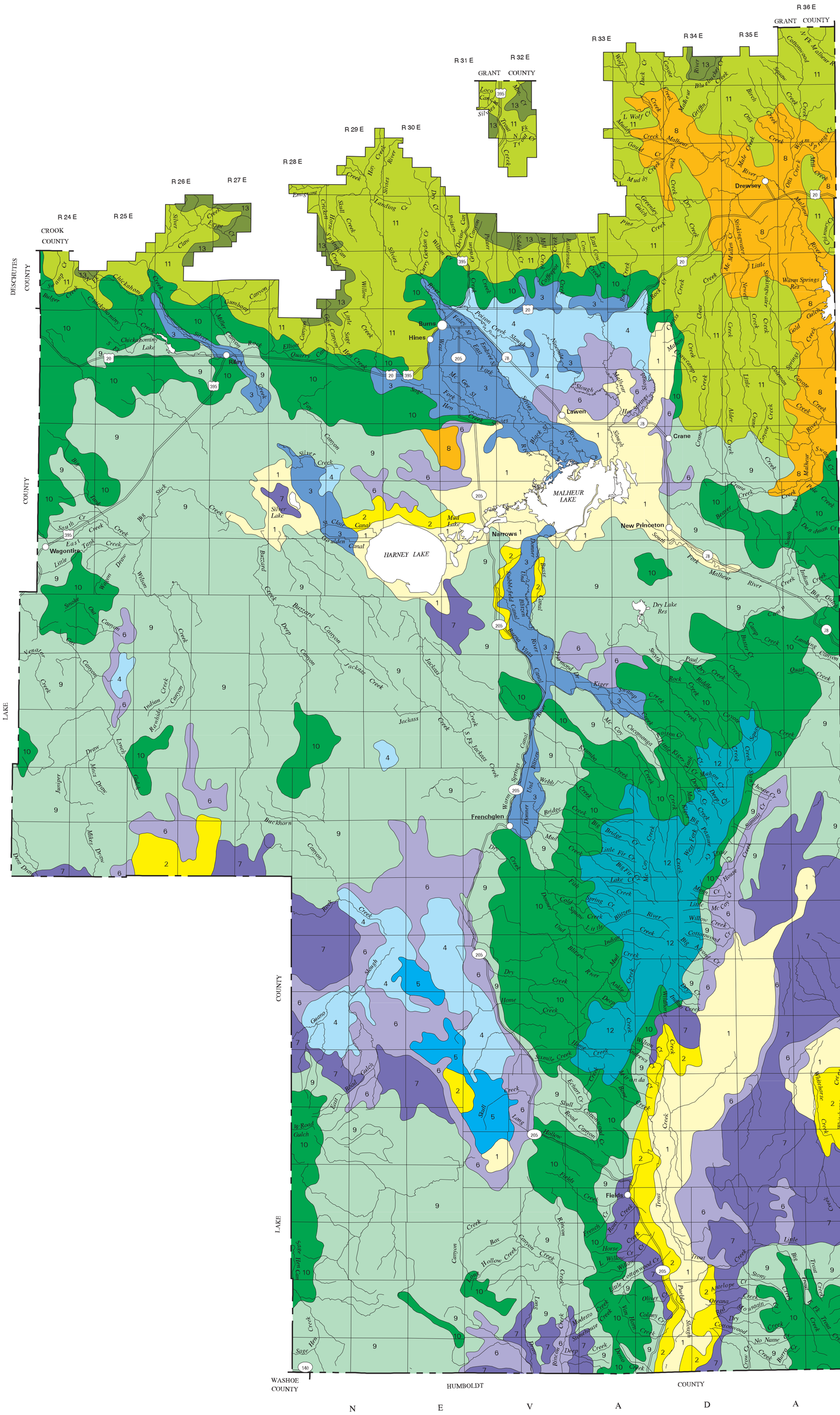
GENERAL SOIL MAP
HARNEY COUNTY AREA, OREGON

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:430000

Each area outlined on this map consists of more than one kind of soil. The map is thus meant for general planning rather than a basis for decisions on the use of specific tracts.



LEGEND

1	Saline-sodic lake plains and playas
2	Saline-sodic lake terraces and fans
3	Marshes, meadows, and stream terraces
4	Well drained to somewhat poorly drained, very deep, loamy and clayey lake terraces
5	Well drained, very deep, silty lake terraces
6	Well drained and somewhat excessively drained, very deep, loamy and sandy lake terraces
7	Well drained, shallow and moderately deep, loamy lake terraces and plateaus
8	Warm hills
9	Cold, dry plateaus and hills
10	Cold, moist southern and central plateaus and hills
11	Cold, moist northern hills and mountains
12	Cold, wet mountains
13	Forestland

SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

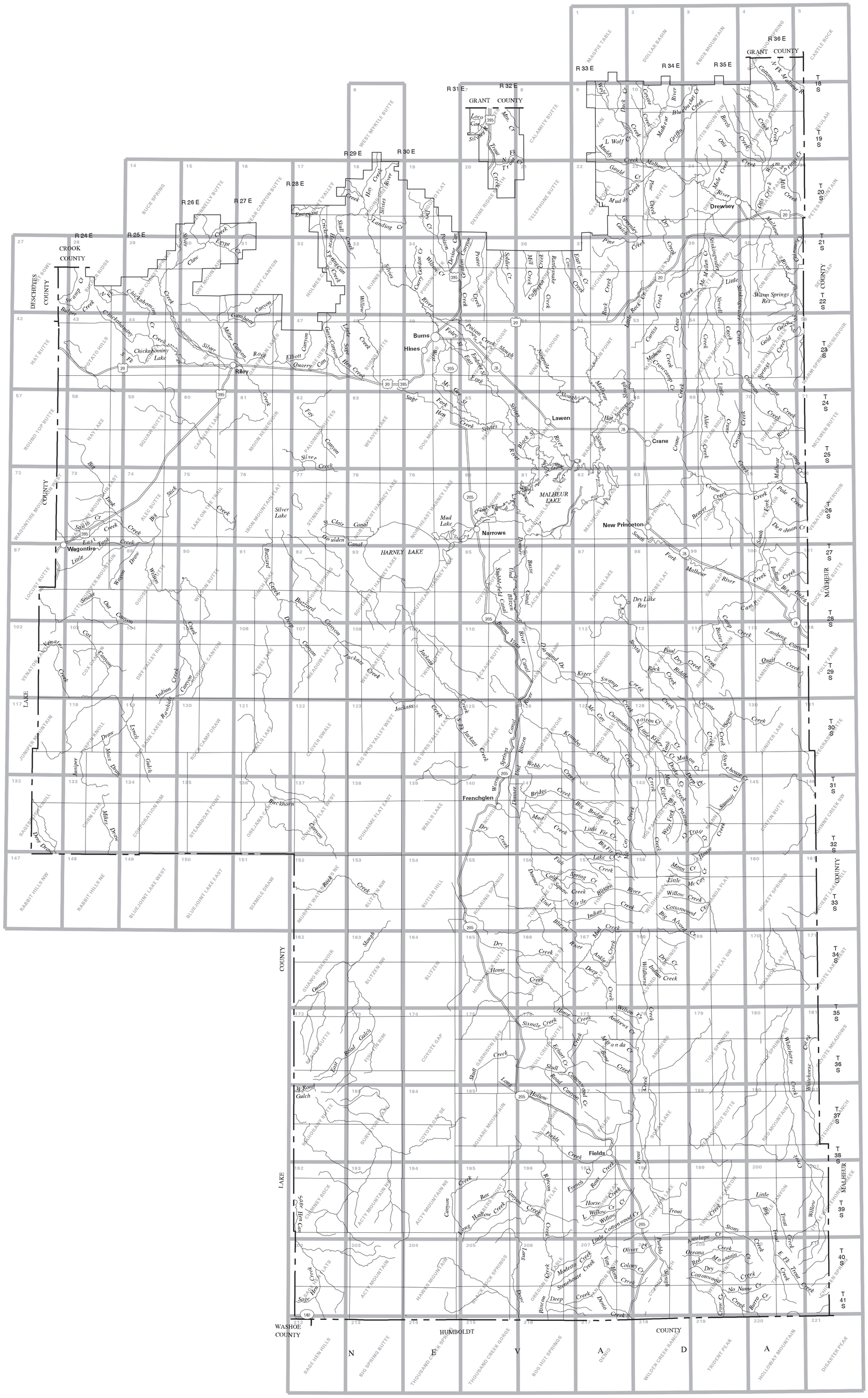
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GENERAL VEGETATION MAP
HARNEY COUNTY AREA, OREGON

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:430000



SECTIONALIZED TOWNSHIP

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

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INDEX TO MAP SHEETS
HARNEY COUNTY AREA, OREGON

1 0 1 2 3
MILES

1 0 1 2 3 4 5 6
KILOMETERS

SCALE = 1:430000

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON

UNITED STATES DEPARTMENT OF INTERIOR, BUREAU OF LAND MANAGEMENT
U.S. FISH AND WILDLIFE SERVICE, BUREAU OF INDIAN AFFAIRS; OREGON AGRICULTURAL EXPERIMENT STATION

SOIL LEGEND

SYMBOL	NAME
1	Actem cobbly loam, 2 to 20 percent slopes
2	Actem extremely cobbly loam, low precipitation, 2 to 15 percent slopes
3	Actem-Robson complex, 2 to 20 percent slopes
4	Alvodest silty clay loam, 0 to 3 percent slopes
5	Alvodest-Playas complex, 0 to 2 percent slopes
6	Alyan gravelly sandy loam, 3 to 15 percent slopes
7	Anatone very stony loam, 2 to 12 percent slopes
8	Anatone complex, 2 to 30 percent slopes
9	Anatone-Teguro-Observation complex, 2 to 20 percent slopes
10	Anatone-Egyptcreek-Rock outcrop association, 20 to 50 percent slopes
11	Anatone-Minam-Rock outcrop association, 2 to 50 percent slopes
12	Anatone-Teguro-Rock outcrop association, 2 to 40 percent slopes
13	Anatone-Westbutte-Rock outcrop association, 20 to 60 percent slopes
14	Anawalt gravelly clay loam, 0 to 12 percent slopes
15	Anawalt-Lonely complex, 5 to 30 percent slopes
16	Anawalt-Oreneva complex, 0 to 12 percent slopes
17	Anawalt-Raz complex, 2 to 10 percent slopes
18	Ateron gravelly loam, 2 to 20 percent slopes
19	Ateron-Rubble land complex, 2 to 35 percent slopes
20	Ateron-Observation association, 5 to 30 percent slopes
21	Atlow very stony loam, 5 to 30 percent slopes
22	Atlow-Rock outcrop complex, 5 to 30 percent slopes
23	Atlow-Rock outcrop complex, 30 to 50 percent slopes
24	Atlow-Skedaddle complex, 5 to 30 percent slopes
25	Ausmus fine sandy loam, 0 to 1 percent slopes
26	Ausmus fine sandy loam, 0 to 1 percent slopes, flooded
27	Baconcamp stony clay loam, 15 to 30 percent north slopes
28	Baconcamp-Clamp complex, 5 to 20 percent slopes
29	Baconcamp-Clamp complex, 30 to 50 percent north slopes
30	Baconcamp-Clamp-Rock outcrop complex, 50 to 70 percent north slopes
31	Baconcamp-Rock outcrop complex, 3 to 30 percent slopes
32	Baconcamp-Rock outcrop complex, 30 to 70 percent north slopes
33	Baconcamp-Rock outcrop-Hackwood complex, 30 to 80 percent slopes
34	Baconcamp-Hapgood-Rock outcrop association, 15 to 50 percent slopes
35	Baconcamp-Krackle-Rock outcrop association, 25 to 65 percent slopes
36	Berdugo silt loam, 0 to 3 percent slopes
37	Berdugo-Catlow complex, 0 to 5 percent slopes
38	Bigfrog-Brock complex, 8 to 40 percent slopes
39	Bocker-Westbutte complex, 5 to 25 percent slopes
40	Boravall-Playas complex, 0 to 3 percent slopes
41	Borobey sandy loam, 2 to 15 percent slopes
42	Boulder Lake clay, 0 to 2 percent slopes
43	Boulder Lake-Merlin complex, 0 to 3 percent slopes
44	Boulder Lake-Spangenburg complex, 0 to 2 percent slopes
45	Brabble-Calderwood complex, 5 to 25 percent slopes
46	Brace-Coztur-Rock outcrop complex, 2 to 20 percent slopes
47	Brace-Vergas complex, 2 to 20 percent slopes
48	Bruncan complex, 0 to 5 percent slopes
49	Brunzell gravelly loam, 0 to 2 percent slopes
50	Bucklake very stony clay loam, 20 to 50 percent north slopes
51	Bucklake-Mahoon-Rubble land complex, 20 to 40 percent slopes
52	Calderwood very gravelly loam, 5 to 25 percent slopes
53	Calderwood-McConnel complex, 0 to 20 percent slopes
54	Carryback silty clay loam, 2 to 20 percent slopes
55	Carryback cobbly clay loam, 5 to 20 percent slopes
56	Carryback very stony clay loam, 2 to 20 percent slopes
57	Carryback very gravelly loam, low elevation, 3 to 20 percent slopes
58	Carryback complex, 2 to 20 percent slopes
59	Carryback complex, 20 to 40 percent slopes
60	Carryback complex, low elevation, 20 to 40 percent slopes
61	Carryback-Pearlwise complex, 3 to 15 percent slopes
62	Carryback-Pearlwise-Rock outcrop complex, 25 to 50 percent north slopes
63	Carryback-Dickle association, 12 to 35 percent north slopes
64	Carvix silt loam, 0 to 5 percent slopes
65	Clamp-Baconcamp-Hackwood complex, 20 to 35 percent north slopes
66	Coztur sandy loam, 2 to 15 percent slopes
67	Crowcamp loam, 0 to 1 percent slopes
68	Crowcamp-Ausmus-Poujade complex, 0 to 5 percent slopes
69	Davey sandy loam, 0 to 8 percent slopes
70	Davey-Oreanna complex, 0 to 8 percent slopes
71	Defenbaugh loam, 0 to 2 percent slopes
72	Deppy very gravelly loam, 5 to 15 percent slopes
73	Deppy-Tumtum complex, 5 to 15 percent slopes
74	Dickle very cobbly clay loam, 3 to 12 percent slopes
75	Dixon gravelly fine sandy loam, 0 to 5 percent slopes
76	Dixon gravelly fine sandy loam, alkali, 0 to 2 percent slopes
77	Dixon gravelly sandy clay loam, 3 to 15 percent slopes
78	Dixon-Drovall complex, 0 to 2 percent slopes
79	Dogmountain gravelly loam, 4 to 20 percent slopes
80	Doyn very stony loam, 2 to 20 percent slopes
81	Doyn-Merlin complex, 2 to 20 percent slopes
82	Doyn-Arcia association, 2 to 30 percent slopes
83	Drewsey very fine sandy loam, 1 to 5 percent slopes
84	Drewsey very fine sandy loam, 2 to 20 percent slopes
85	Drewsey-Torriorthents-Gumble complex, 2 to 40 percent slopes
86	Drovall loam, 0 to 3 percent slopes
87	Duff loam, 3 to 12 percent slopes
88	Duff-Clamp complex, 5 to 20 percent slopes
89	Duff-Clamp complex, 20 to 40 percent north slopes
90	Duff-Hackwood complex, 2 to 30 percent slopes
91	Edemaps loam, 5 to 20 percent slopes
92	Edemaps-Carryback association, 2 to 10 percent slopes
93	Enko loamy sand, 2 to 8 percent slopes
94	Enko-Catlow complex, 1 to 7 percent slopes
95	Enko-Catlow complex, 7 to 15 percent slopes
96	Enko-Catlow association, 2 to 20 percent slopes
97	Erakatak extremely stony silty clay loam, 50 to 80 percent north slopes
98	Erakatak-Lambring-Rock outcrop complex, 20 to 60 percent north slopes
99	Erakatak-Merlin-Westbutte complex, 10 to 60 percent slopes
100	Erakatak-Rock outcrop complex, 20 to 60 percent slopes
101	Erakatak-Ninemile-Hapgood association, 5 to 40 percent slopes
102	Felcher extremely stony clay loam, 20 to 40 percent south slopes
103	Felcher-Rock outcrop complex, 40 to 70 percent south slopes
104	Felcher-Rock outcrop-Brezniak complex, 30 to 65 percent south slopes
105	Felcher-Rock outcrop-Westbutte complex, 20 to 40 percent slopes
106	Felcher-Sagehen complex, 5 to 30 percent slopes
107	Felcher-Sagehen complex, 40 to 70 percent north slopes
108	Felcher-Fitzwater-Rock outcrop association, 20 to 60 percent slopes
109	Felcher-Pernty-Ninemile association, 10 to 35 percent slopes
110	Felcher-Westbutte association, 20 to 40 percent slopes
111	Final silt loam, 0 to 2 percent slopes
112	Fitzwater-Hapgood association, 20 to 40 percent slopes
113	Fitzwater-Rock outcrop complex, 20 to 60 percent north slopes
114	Flank-Lava flows complex, 1 to 40 percent slopes
115	Fourwheel stony loam, 3 to 12 percent slopes
116	Fourwheel extremely cobbly loam, 20 to 40 percent north slopes
117	Freznik very stony silt loam, 2 to 15 percent slopes
118	Fury silt loam, 0 to 1 percent slopes
119	Fury silt loam, 0 to 1 percent slopes, ponded
120	Fury-Degarmo complex, 0 to 2 percent slopes, flooded
121	Fury-Housefield complex, 0 to 1 percent slopes
122	Fury-Housefield-Skidoosprings complex, 0 to 2 percent slopes
123	Fury-Opie complex, 0 to 1 percent slopes
124	Fury-Skidoosprings-Opie complex, 0 to 2 percent slopes
125	Fury-Widowspring complex, 0 to 2 percent slopes
126	Gaib gravelly loam, 2 to 20 percent slopes
127	Gaib-Ateron complex, 2 to 15 percent slopes
128	Gaib-Rock outcrop complex, 20 to 60 percent slopes
129	Gillispie-Noname complex, 3 to 15 percent slopes
130	Gochea sandy loam, 0 to 2 percent slopes
131	Goldrun-Alvodest complex, 0 to 12 percent slopes
132	Gradon gravelly fine sandy loam, 0 to 8 percent slopes
133	Guano gravelly sandy loam, 2 to 15 percent slopes
134	Gumble very gravelly silt loam, 2 to 20 percent slopes
135	Gumble very stony loam, 20 to 40 percent south slopes
136	Gumble-Mahoon-Cagle complex, 2 to 40 percent slopes
137	Hackwood gravelly loam, 20 to 30 percent slopes
138	Hackwood-Baconcamp complex, 20 to 35 percent north slopes
139	Hapgood very cobbly loam, 2 to 12 percent slopes
140	Hart Camp cobbly loam, 5 to 15 percent slopes
141	Hart Camp cobbly loam, 15 to 30 percent slopes
142	Helphenstein-Goldrun complex, 0 to 15 percent slopes
143	Homefield mucky silt loam, 0 to 1 percent slopes
144	Housefield mucky silt loam, 0 to 1 percent slopes
145	Housefield-Doubleo complex, 0 to 1 percent slopes
146	Icene-Playas complex, 0 to 1 percent slopes
147	Icene-Playas complex, slightly alkaline, 0 to 1 percent slopes
148	Jesse Camp silt loam, 2 to 5 percent slopes
149	Jimgreen muck, 0 to 1 percent slopes
150	Jimgreen-Housefield complex, 0 to 1 percent slopes
151	Kegler fine sandy loam, 2 to 5 percent slopes
152	Kerrfield loam, 3 to 20 percent slopes
153	Klicker very gravelly loam, 35 to 60 percent north slopes
154	Klicker extremely cobbly loam, 15 to 35 percent north slopes
155	Krackle complex, 20 to 40 percent slopes
156	Krackle-Baconcamp-Rock outcrop complex, 3 to 30 percent slopes
157	Krackle-Baconcamp-Rock outcrop complex, high precipitation, 3 to 30 percent slopes
158	Krackle-Rock outcrop complex, 25 to 50 percent south slopes
159	Krackle-Baconcamp-Hackwood association, 20 to 35 percent slopes
160	Ladycomb cobbly clay loam, 8 to 25 percent slopes
161	Lambranch gravelly loam, 2 to 8 percent slopes
162	Lambring-Egyptcreek-Rock outcrop complex, 20 to 60 percent slopes
163	Lambring-Rock outcrop complex, 30 to 70 percent north slopes
164	Lambring-Rubble land complex, 30 to 50 percent slopes
165	Langslet silty clay, 0 to 2 percent slopes
166	Lava flows
167	Lava flows-Flank complex, 1 to 40 percent slopes
168	Lawen fine sandy loam, 2 to 5 percent slopes
169	Leathers silt loam, 0 to 2 percent slopes
170	Leathers silt loam, 1 to 3 percent slopes
171	Leemorris-Buckwilder complex, 3 to 15 percent slopes
172	Leemorris-Buckwilder complex, 15 to 35 percent slopes
173	Legler silty clay loam, 0 to 3 percent slopes
174	Locane very cobbly loam, 5 to 25 percent slopes
175	Lolak very fine sandy loam, 0 to 1 percent slopes
176	Lolak-Ausmus complex, 0 to 1 percent slopes
177	Lonely-Doyn association, 2 to 20 percent slopes
178	Lonely-Robson association, 5 to 25 percent slopes
179	Longcreek-Cleavage complex, 20 to 50 percent slopes
180	Longcreek-Rock outcrop complex, 40 to 70 percent south slopes
181	Loupence silt loam, 0 to 2 percent slopes
182	Madeline very stony loam, 15 to 40 percent south slopes
183	Madeline very stony loam, 20 to 60 percent north slopes
184	Madeline-Ninemile complex, 15 to 35 percent slopes
185	Madeline-Rock outcrop complex, 40 to 70 percent slopes
186	Mahoon very cobbly loam, 2 to 20 percent slopes
187	Mahoon-Brezniak-Longcreek complex, 2 to 20 percent slopes
188	Mahoon-Cagle complex, 10 to 40 percent slopes
189	Mahoon-Risley complex, 2 to 20 percent slopes
190	Mahoon-Cotant association, 15 to 30 percent slopes
191	Mcbain-Ausmus complex, 0 to 2 percent slopes
192	McConnel cobbly sandy loam, 3 to 8 percent slopes
193	Merlin very stony loam, 2 to 15 percent slopes
194	Merlin complex, 2 to 20 percent slopes
195	Merlin-Ateron complex, 2 to 20 percent slopes
196	Merlin-Ateron-Rubble land complex, 2 to 20 percent slopes
197	Merlin-Ateron-Ticino complex, 2 to 20 percent slopes
198	Merlin-Erakatak-Teguro complex, 2 to 20 percent slopes
199	Merlin-Observation complex, 2 to 20 percent slopes
200	Merlin-Observation complex, 20 to 40 percent north slopes
201	Merlin-Rubble land complex, 2 to 15 percent slopes
202	Merlin-Teguro complex, 2 to 15 percent slopes
203	Merlin-Teguro complex, very stony, 2 to 20 percent slopes
204	Mesman loamy fine sand, 0 to 5 percent slopes
205	Mesman fine sandy loam, 0 to 5 percent slopes
206	Mesman-Norad complex, 0 to 2 percent slopes
207	Middlebox gravelly sandy loam, 5 to 20 percent slopes
208	Middlebox complex, 15 to 40 percent slopes
209	Minam silt loam, 0 to 2 percent slopes
210	Minam-Welch complex, 0 to 3 percent slopes
211	Modoc gravelly sandy loam, 2 to 15 percent slopes
212	Morfit loam, 0 to 2 percent slopes
213	Morganhills sandy loam, 2 to 12 percent slopes
214	Morganhills complex, 2 to 35 percent slopes
215	Mound stony loam, 2 to 20 percent slopes
216	Nevador very gravelly sandy loam, 3 to 12 percent slopes
217	Ninemile gravelly loam, hummocky, 0 to 8 percent slopes
218	Ninemile very cobbly clay loam, low precipitation, 2 to 30 percent slopes
219	Ninemile very stony clay loam, 0 to 20 percent slopes
220	Ninemile-Carvix complex, 0 to 8 percent slopes
221	Ninemile-Doyn complex, 2 to 20 percent slopes
222	Ninemile-Edemaps complex, 2 to 10 percent slopes
223	Ninemile-Madeline complex, 2 to 15 percent slopes
224	Ninemile-Pearlwise complex, 20 to 35 percent slopes
225	Ninemile-Reluctan complex, 0 to 15 percent slopes
226	Ninemile-Reluctan-Rubble land complex, 2 to 30 percent slopes
227	Ninemile-Rock outcrop complex, 40 to 70 percent south slopes
228	Ninemile-Rubble land complex, 5 to 20 percent slopes
229	Ninemile-Westbutte complex, 2 to 15 percent slopes
230	Ninemile-Westbutte-Ninemile complex, 2 to 30 percent slopes
231	Ninemile association, 2 to 12 percent slopes
232	Ninemile-Felcher association, 5 to 30 percent slopes
233	Noname-Dickle complex, 3 to 12 percent slopes
234	Noname-Duff-Rock outcrop complex, 20 to 80 percent slopes
235	Norad silt loam, 0 to 1 percent slopes
236	Norad-Spangenburg complex, 0 to 2 percent slopes
237	Nuss stony loam, 20 to 40 percent south slopes
238	Nuss-Merlin complex, 20 to 40 percent north slopes
239	Nuss-Rock outcrop complex, 20 to 40 percent south slopes
240	Observation stony loam, 2 to 20 percent slopes
241	Observation-Rock outcrop complex, 5 to 20 percent slopes
242	Observation-Roost-Merlin complex, 2 to 30 percent slopes
243	Observation-Teguro complex, 2 to 20 percent slopes
244	Observation-Lambring-Rock outcrop association, 20 to 50 percent slopes
245	Olac-Atlow complex, 2 to 10 percent slopes
246	Opie silt loam, 0 to 1 percent slopes
247	Oreneva gravelly loam, 0 to 12 percent slopes
248	Outerkirk sandy loam, 1 to 4 percent slopes
249	Outerkirk sandy loam, silty substratum, 2 to 6 percent slopes
250	Outerkirk-Defenbaugh association, 1 to 4 percent slopes
251	Ozamis silt loam, 0 to 1 percent slopes
252	Pearlwise stony loam, 30 to 65 percent north slopes
253	Pernty gravelly silt loam, 3 to 15 percent slopes
254	Pernty gravelly silt loam, 15 to 40 percent south slopes
255	Pernty cobbly loam, 30 to 50 percent north slopes
256	Pernty-Rock outcrop complex, 30 to 70 percent south slopes
257	Pernty-Westbutte-Ninemile association, 5 to 50 percent slopes
258	Pits
259	Playas
260	Playas-Thenarrows complex, 0 to 2 percent slopes
261	Poall silt loam, 2 to 20 percent slopes
262	Poall-Gumble complex, 2 to 20 percent slopes
263	Pomerening very gravelly loamy sand, 2 to 20 percent slopes
264	Pomerening-Flank-Lava flows complex, 2 to 20 percent slopes
265	Porterfield loam, 2 to 20 percent slopes
266	Porterfield very stony loam, 20 to 40 percent south slopes
267	Porterfield-Tincan-Rock outcrop association, 20 to 60 percent slopes
268	Poujade very fine sandy loam, 0 to 2 percent slopes
269	Poujade very fine sandy loam, 0 to 5 percent slopes
270	Poujade-Ausmus complex, 0 to 2 percent slopes
271	Raz cobbly fine sandy loam, 1 to 10 percent slopes
272	Raz-Brace complex, 2 to 20 percent slopes
273	Raz-Brace complex, low precipitation, 2 to 20 percent slopes
274	Reallis sandy loam, 3 to 8 percent slopes
275	Reallis fine sandy loam, 0 to 3 percent slopes
276	Reese loam, 0 to 1 percent slopes
277	Reluctan loam, 2 to 20 percent slopes
278	Reluctan very stony silt loam, 2 to 20 percent slopes
279	Riddleranch-Lambring-Rock outcrop complex, 20 to 50 percent slopes
280	Riddleranch-Rock outcrop complex, 20 to 70 percent south slopes
281	Rinconflat stony loam, 3 to 10 percent slopes
282	Rio King loam, 1 to 6 percent slopes
283	Rio King-Droval complex, 0 to 2 percent slopes
284	Risley-Gumble complex, 2 to 20 percent slopes
285	Risley-Gumble-Torriorthents complex, 2 to 25 percent slopes
286	Risley-Rock outcrop complex, 5 to 20 percent slopes
287	Robson-Anawalt complex, 2 to 15 percent slopes
288	Robson-Fourwheel complex, 3 to 30 percent slopes
289	Robson-Felcher association, 3 to 70 percent slopes
290	Roca very cobbly clay loam, 15 to 40 percent south slopes
291	Rock outcrop and Rubble land, 20 to 60 percent slopes
292	Rock outcrop-Broncamp complex, 30 to 80 percent slopes
293	Royst-Merlin complex, 2 to 20 percent slopes
294	Rubble land-Nuss-Ateron association, 20 to 60 percent slopes
295	Sagehen-Rock outcrop complex, 5 to 30 percent slopes
296	Sagehen-Rock outcrop complex, 30 to 70 percent slopes
297	Sandgap sand, 3 to 8 percent slopes
298	Sandgap sand, 1 to 4 percent slopes, flooded
299	Seharney cobbly silt loam, 3 to 12 percent slopes
300	Skedaddle-Atlow-Rock outcrop complex, 5 to 30 percent slopes
301	Skedaddle-Atlow-Rock outcrop complex, 30 to 50 percent slopes
302	Skedaddle-Rock outcrop complex, 40 to 70 percent slopes
303	Skedaddle association, 30 to 50 percent slopes
304	Skidoosprings sandy loam, 0 to 3 percent slopes
305	Skidoosprings sandy loam, 0 to 1 percent slopes, flooded
306	Skunkfarm-Cumulic Haploxerolls complex, 0 to 2 percent slopes
307	Skunkfarm-Doubleo complex, 0 to 1 percent slopes
308	Skunkfarm-Mcbain-Doubleo complex, 0 to 2 percent slopes
309	Skunkfarm-Skidoosprings complex, 0 to 2 percent slopes
310	Spangenburg silty clay loam, 0 to 1 percent slopes
311	Spangenburg silty clay loam, moist, 0 to 1 percent slopes
312	Spangenburg silty clay loam, thick surface, 0 to 2 percent slopes
313	Srednic-Aval complex, 2 to 20 percent slopes
314	Stampede loam, 1 to 5 percent slopes
315	Swaler silt loam, 0 to 1 percent slopes
316	Swaler-Swalesilver association, 0 to 2 percent slopes
317	Swalesilver silt loam, 0 to 2 percent slopes
318	Swalesilver silt loam, dry, 0 to 2 percent slopes
319	Swalesilver silt loam, 0 to 1 percent slopes, flooded
320	Teguro gravelly loam, 5 to 20 percent slopes
321	Teguro very cobbly loam, 2 to 20 percent slopes
322	Teguro very stony loam, thin surface, 2 to 20 percent slopes
323	Teguro-Ateron complex, 2 to 20 percent slopes
324	Teguro-Ateron complex, 2 to 20 percent slopes
325	Thenarrows-Duckclub complex, 0 to 1 percent slopes
326	Thenarrows-Duckclub-Dentdraw complex, 0 to 2 percent slopes
327	Thenarrows-Duckclub-Sandgap complex, 0 to 4 percent slopes
328	Ticino-Merlin complex, 2 to 10 percent slopes
329	Ticino-Observation complex, 2 to 20 percent slopes
330	Ticino-Rock outcrop complex, 2 to 20 percent slopes
331	Toll sand, 2 to 15 percent slopes
332	Toll-Nevador complex, 0 to 15 percent slopes
333	Torriorthents-Gumble complex, 2 to 35 percent slopes
334	Tumtum cobbly loam, 4 to 15 percent slopes
335	Tumtum cobbly loam, high precipitation, 2 to 8 percent slopes
336	Turpin sandy clay loam, 0 to 1 percent slopes
337	Vanwyper-Rock outcrop complex, 45 to 80 percent north slopes
338	Vergas gravelly loam, 0 to 3 percent slopes
339	Vil silt loam, 2 to 20 percent slopes
340	Vining loam, 2 to 20 percent slopes
341	Vining-Tuffo complex, 5 to 30 percent slopes
342	Vitale very stony loam, 5 to 20 percent slopes
343	Vitale-Merlin complex, 2 to 20 percent slopes
344	Vitale-Merlin-Doyn complex, 2 to 20 percent slopes
345	Vitale-Observation complex, 2 to 20 percent slopes
346	Vitale-Rock outcrop complex, 20 to 60 percent south slopes
347	Voltage silt loam, 0 to 2 percent slopes
348	Voltage-Crowcamp complex, 0 to 2 percent slopes
349	Voltage-Crowcamp complex, 0 to 2 percent slopes, flooded
350	Voltage-Widowspring complex, 0 to 2 percent slopes
351	Wagontire gravelly clay loam, 2 to 20 percent slopes
352	Wagontire-Vil complex, 2 to 20 percent slopes
353	Waspo-Poall complex, 2 to 8 percent slopes
354	Water
355	Welch silt loam, cold, 0 to 5 percent slopes
356	Welch silt loam, cool, 0 to 5 percent slopes
357	Welch-Roschene-Cumulic Haploxerolls complex, 0 to 3 percent slopes
358	Wenas-Loupence-Cumulic Haploxerolls complex, 0 to 3 percent slopes
359	Westbutte very stony loam, 20 to 50 percent north slopes
360	Westbutte extremely stony loam, 5 to 25 percent slopes
361	Westbutte-Bocker complex, 20 to 60 percent slopes
362	Westbutte-Lambring-Rock outcrop complex, 35 to 65 percent north slopes
363	Westbutte-Rock outcrop complex, 20 to 60 percent north slopes
364	Westbutte-Rock outcrop complex, 20 to 60 percent south slopes
365	Westbutte-Lambring-Rock outcrop association, 20 to 60 percent slopes
366	Westbutte-Lambring-Rock outcrop association, cool, 20 to 60 percent slopes
367	Westbutte-Lambring-Rock outcrop association, moist, 20 to 60 percent slopes
368	Westbutte-Observation association, 5 to 40 percent slopes
369	Westbutte-Rock outcrop-Pernty association, 20 to 40 percent slopes
370	Widowspring silt loam, 0 to 2 percent slopes
371	Windybutte silt loam, 2 to 5 percent slopes
372	Wolverine fine sand, 2 to 15 percent slopes
373	Denied access

CONVENTIONAL AND SPECIAL SYMBOLS LEGEND

CULTURAL FEATURES

BOUNDARIES

- National, state, or province
- County or parish
- Minor civil division
- Reservation (national forest or park, state forest or park)
- Land grant
- Limit of soil survey (label) and/or denied access area
- Field sheet matchline & neatline
- Previously Published Survey

OTHER BOUNDARY (label)

- Airport, airfield
- Cemetery
- City/county park

STATE COORDINATE TICK
1 890 000 FEET

LAND DIVISION CORNER
(section and land grants)

GEOGRAPHIC COORDINATE TICK

TRANSPORTATION

- Divided roads
- Other roads
- Trail

ROAD EMBLEM AND DESIGNATIONS

- Interstate
- Federal
- State
- County, farm or ranch

RAILROAD

POWER TRANSMISSION LINE

PIPELINE

FENCE

LEVEES

- Without road
- With road
- With railroad
- Single side slope (showing actual feature location)

DAMS

- Medium or Small

LANDFORM FEATURES

- Prominent hill or peak
- Soil Sample Site

MISCELLANEOUS CULTURAL FEATURES

- Farmstead, house
- Church
- School
- Other Religion
- Located object
- Tank
- Lookout Tower
- Oil and/or Natural Gas Wells
- Windmill
- Lighthouse

HYDROGRAPHIC FEATURES

STREAMS

- Perennial stream, double line
- Perennial stream, single line — Label only
- Intermittent stream — Label only
- Drainage end — Label only

DRAINAGE AND IRRIGATION

- Double-line canal (label)
- Perennial drainage and/or irrigation ditch — Label only
- Intermittent drainage and/or irrigation ditch — Label only

SMALL LAKES, PONDS AND RESERVOIRS

- Perennial water
- Miscellaneous water
- Flood pool line

MISCELLANEOUS WATER FEATURES

- Spring
- Well, artesian
- Well, irrigation

SPECIAL SYMBOLS FOR SOIL SURVEY AND SSURGO

SOIL DELINEATIONS AND SYMBOLS

LANDFORM FEATURES

- Bedrock escarpment
- Other than bedrock escarpment
- Short steep slope
- Gully
- Depression, closed
- Sinkhole

PITS

- Borrow pits
- Gravel pit
- Mine or quarry
- Landfill

MISCELLANEOUS SURFACE FEATURES

- Blowout
- Clay spot
- Gravelly spot
- Lava flow
- Marsh or swamp
- Rock outcrop (includes sandstone and shale)
- Saline spot
- Sandy spot
- Severely eroded spot
- Slide or slip
- Sodic spot
- Spoil area
- Stony spot
- Very stony spot
- Wet spot

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
MAGPIE TABLE QUADRANGLE
SHEET NUMBER 1 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



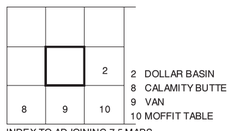
QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS



2 DOLLAR BASIN
8 CALAMITY BUTTE
9 VAN
10 MOFFIT TABLE

INDEX TO ADJOINING 7.5 MAPS

MAGPIE TABLE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 1 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
DOLLAR BASIN QUADRANGLE
SHEET NUMBER 2 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

1		3
9	10	11

1 MAGPIE TABLE
3 KNOX MOUNTAIN
9 VAN
10 MOFFIT TABLE
11 OTIS MOUNTAIN

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DOLLAR BASIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 2 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
KNOX MOUNTAIN QUADRANGLE
SHEET NUMBER 3 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

2		4
10	11	12

2 DOLLAR BASIN
4 BUCK TROUGH SPRING
10 MOFFIT TABLE
11 OTIS MOUNTAIN
12 COTTONWOOD RESERVOIR

INDEX TO ADJOINING 7.5 MAPS

KNOX MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 3 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
BUCK TROUGH SPRING QUADRANGLE
SHEET NUMBER 4 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

3		5
11	12	13

3 KNOX MOUNTAIN
5 CASTLE ROCK
11 OTIS MOUNTAIN
12 COTTONWOOD RESERVOIR
13 BEULAH

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BUCK TROUGH SPRING, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 4 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
CASTLE ROCK QUADRANGLE
SHEET NUMBER 5 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

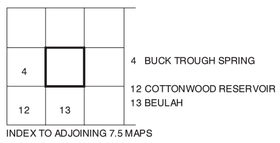
QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS



INDEX TO ADJOINING 7.5 MAPS

CASTLE ROCK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 5 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
WEST MYRTLE BUTTE QUADRANGLE
SHEET NUMBER 6 OF 221

119°15′00″ 119°12′30″ 119°10′00″ 119°07′30″

44°00′00″ 43°57′30″ 43°55′00″ 43°52′30″



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

17	18	19

17 HUGHET VALLEY
18 LANDING CREEK
19 MOSQUITO FLAT

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WEST MYRTLE BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 6 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
TROUT CREEK QUADRANGLE
SHEET NUMBER 7 OF 221

119°00′00″ 118°57′30″ 118°55′00″ 118°52′30″
44°00′00″ 43°57′30″ 43°55′00″ 43°52′30″
340000mE 341 342 343 344 345 346 347 348 349
4873 4872 4871 4870000mN 4869 4868 4867 4866 4865 4864 4863 4862 4861 4860000mN
R. 31 E. R. 32 E.
T. 19 S.

GRANT COUNTY

MALHEUR NATIONAL FOREST BOUNDARY

SILVIES

SILVIES RIVER VALLEY

Loco Canyon
Dog Creek
Trout Creek
Camp Creek
North Fork Trout Creek
Mid Fork Trout Creek
Roper Spring Creek
Fuqua Creek

395

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 24 25 27 28 29 30 31 32 33 34 36

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

8 CALAMITY BUTTE
19 MOSQUITO FLAT
20 DEVINE RIDGE NORTH
21 TELEPHONE BUTTE
INDEX TO ADJOINING 7.5 MAPS

TROUT CREEK, OREGON

7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
CALAMITY BUTTE QUADRANGLE
SHEET NUMBER 8 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

		1
7		9
20	21	22

1 MAGPIE TABLE
7 TROUT CREEK
9 VAN
20 DEVINE RIDGE NORTH
21 TELEPHONE BUTTE
22 CRAFT POINT

INDEX TO ADJOINING 7.5 MAPS

CALAMITY BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 8 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
VAN QUADRANGLE
SHEET NUMBER 9 OF 221

118°45′00″ 118°42′30″ 118°40′00″ 118°37′30″
44°00′00″ 43°57′30″ 43°55′00″ 43°52′30″
360000mE 361 362 363 364 365 366 367 368 369
4873 4872 4871 4870 4869000mN 4868 4867 4866 4865 4864 4863 4862 4861 4860000mN
R. 33 E. R. 33½ E.
T. 18 S. T. 19 S.

MALHEUR NATIONAL FOREST BOUNDARY

Gathe Creek
Calamity Creek
CALAMITY
Wolf Creek
Van FS Station
ROAD
Duck Creek
West Creek
DREWSEY ROAD
Clarks Creek
Little Wolf Creek
Middle Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

	1	2	1 MAGPIE TABLE
8		10	2 DOLLAR BASIN 8 CALAMITY BUTTE 10 MOFFIT TABLE
21	22	23	21 TELEPHONE BUTTE 22 CRAFT POINT 23 HOUSE BUTTE

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VAN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 9 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
MOFFIT TABLE QUADRANGLE
SHEET NUMBER 10 OF 221

118°37′30″ 118°35′00″ 118°32′30″ 118°30′00″
44°00′00″ 43°57′30″ 43°55′00″ 43°52′30″
R. 33½ E. R. 34 E.
T. 18 S. T. 19 S.
370000mE 371 372 373 374 375 376 377 378 379
4869000mN 4868 4867 4866 4865 4864 4863 4862 4861 4860 4859000mN
4872 4871 4870

MALHEUR NATIONAL FOREST BOUNDARY
Hog Flat
Seep Spring
Gully Spring
Big Spring
Coyote Creek
RIVER
Bluebucket Creek
MALHEUR
BATTLE MOUNTAIN
MOFFIT TABLE
Little Wolf Creek
Wolf Creek
VAN
DREWSEY
ROAD
PINE CREEK
Griffin Creek Reservoir
Griffin Creek
CLARK LANE
Bull S Reservoir
306

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

1	2	3
9		11
22	23	24

1 MAGPIE TABLE
2 DOLLAR BASIN
3 KNOX MOUNTAIN
9 VAN
11 OTIS MOUNTAIN
22 CRAFT POINT
23 HOUSE BUTTE
24 DREWSEY

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MOFFIT TABLE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
OTIS MOUNTAIN QUADRANGLE
SHEET NUMBER 11 OF 221

118°30′00″ 118°27′30″ 118°25′00″ 118°22′30″
44°00′00″ 43°57′30″ 43°55′00″ 43°52′30″
R. 34 E. R. 35 E.
T.18 S. T.19 S.
380000mE 381 382 383 384 385 386 387 388 389
4872 4871 4870 4869000m N 4868 4867 4866 4865 4864 4863 4862 4861 4860 4859000m N

MALHEUR NATIONAL FOREST BOUNDARY

Creek
Bluebucket Creek
Pine Spring
Creek
Basco Spring
Otis Mountain
Jackson Creek
Griffin Creek
Gabe Spring
Otis Creek
Drift Creek
Trail Flat
Creek
Griffin Creek
TABLE
MERLIE
Merlie Butte
Rimrock Spring
Otis Creek
Middle Creek
Mule Creek
Mule Creek
Basin Creek
Scallard Reservoir
Hald Butte

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

2	3	4
10		12
23	24	25

2 DOLLAR BASIN
3 KNOX MOUNTAIN
4 BUCK TROUGH SPRING
10 MOFFIT TABLE
12 COTTONWOOD RESERVOIR
23 HOUSE BUTTE
24 DREWSEY
25 DRINKWATER PASS

INDEX TO ADJOINING 7.5 MAPS

OTIS MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 11 OF 221

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
COTTONWOOD RESERVOIR QUADRANGLE
SHEET NUMBER 12 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

3	4	5
11		13
24	25	26

3 KNOX MOUNTAIN
4 BUCK TROUGH SPRING
5 CASTLE ROCK
11 OTIS MOUNTAIN
13 BEULAH
24 DREWSEY
25 DRINKWATER PASS
26 PETES MOUNTAIN

INDEX TO ADJOINING 7.5 MAPS

COTTONWOOD RESERVOIR, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 12 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
BEULAH QUADRANGLE
SHEET NUMBER 13 OF 221

118°15′00″ 400000mE R. 36 E. 401 402 118°12′30″ 403 404 405 406 118°10′00″ 407 408 409 118°07′30″

44°00′00″ 4872 4871 4870 4869000mN 4868 43°57′30″ 4867 4866 4865 4864 43°55′00″ 4863 4862 4861 4860 4859000mN 43°52′30″

T.18 S.
T.19 S.

MALHEUR COUNTY

N FORK MALHEUR R

Rocky Basin

Altnow

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

4	5	4 BUCK TROUGH SPRING 5 CASTLE ROCK
12		12 COTTONWOOD RESERVOIR
25	26	25 DRINKWATER PASS 26 PETES MOUNTAIN

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BEULAH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 13 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
BUCK SPRING QUADRANGLE
SHEET NUMBER 14 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

		15
28	29	30

15 DONNELLY BUTTE
28 BULGER RIDGE
29 CAMP CURREY SPRING
30 DRY MOUNTAIN

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BUCK SPRING, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 14 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
DONNELLY BUTTE QUADRANGLE
SHEET NUMBER 15 OF 221

119° 37′ 30″ — 119° 35′ 00″ — 119° 32′ 30″ — 119° 30′ 00″
289000mE 290 291 292 293 294 295 296 297 298 299000mE
43° 52′ 30″ — 43° 50′ 00″ — 43° 47′ 30″ — 43° 45′ 00″
4861 4860 4859 4858000mN 4857 4856 4855 4854 4853 4852 4851 4850 4849 4848000mN
4860 4859 4858 4857000mN 4856 4855 4854 4853 4852 4851 4850 4849 4848 4847000mN

OCHOCO NATIONAL FOREST BOUNDARY

Mineral Canyon Creek
Packsaddle Spring
Wickiup Creek
Claw
Willow Spring
Silver Creek

T. 21 S.
R. 26 E.
R. 27 E.

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

14		16
29	30	31

14 BUCK SPRING
16 BEAR CANYON BUTTE
29 CAMP CURREY SPRING
30 DRY MOUNTAIN
31 EGYPT CANYON

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DONNELLY BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 15 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
BEAR CANYON BUTTE QUADRANGLE
SHEET NUMBER 16 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

15		17
30	31	32

15 DONNELLY BUTTE
17 HUGHET VALLEY
30 DRY MOUNTAIN
31 EGYPT CANYON
32 HOLMES CANYON

INDEX TO ADJOINING 7.5 MAPS

BEAR CANYON BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 16 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
HUGHET VALLEY QUADRANGLE
SHEET NUMBER 17 OF 221

119°22′30″ 119°20′00″ 119°17′30″ 119°15′00″

R. 29 E. R. 28 E.

43°52′30″ 43°50′00″ 43°47′30″ 43°45′00″

T. 20 S. T. 21 S.

MALHEUR NATIONAL FOREST BOUNDARY

OCHOCO NATIONAL FOREST BOUNDARY

Emigrant Creek
Carlon Spring
Stinger Creek
Cricket Creek
Yellowjacket Cr.
Beaverdam Creek
Emigrant Creek
Willow Reservoir
Skull Creek
Carlon Canyon
Horse Spring Canyon

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

		6	
16		18	
31	32	33	

6 WEST MYRTLE BUTTE
16 BEAR CANYON BUTTE
18 LANDING CREEK
31 EGYPT CANYON
32 HOLMES CANYON
33 BURNS NW

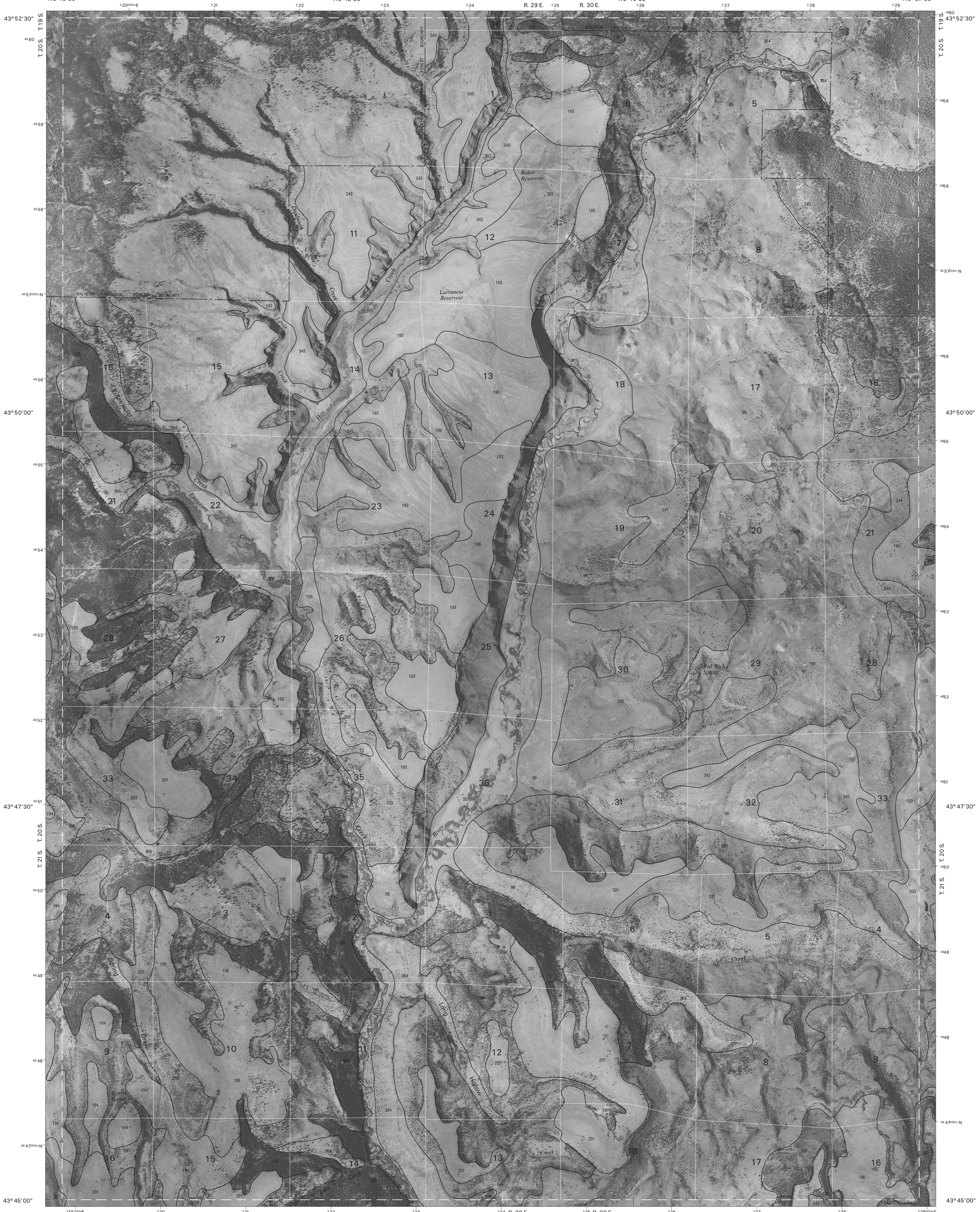
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HUGHET VALLEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 17 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
LANDING CREEK QUADRANGLE
SHEET NUMBER 18 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83), GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

	6	
17		19
32	33	34

6 WEST MYRTLE BUTTE
17 HUGHET VALLEY
19 MOSQUITO FLAT
32 HOLMES CANYON
33 BURNS NW
34 POISON CREEK

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LANDING CREEK, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 18 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
MOSQUITO FLAT QUADRANGLE
SHEET NUMBER 19 OF 221

119° 07′ 30″ — 119° 05′ 00″ — 119° 02′ 30″ — 119° 00′ 00″
43° 52′ 30″ — 43° 50′ 00″ — 43° 47′ 30″ — 43° 45′ 00″
R. 30 E. — R. 31 E.
T. 20 S. — T. 21 S.

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

6		7	6 WEST MYRTLE BUTTE 7 TROUT CREEK
18		20	18 LANDING CREEK 20 DEVINE RIDGE NORTH
33	34	35	33 BURNS NW 34 POISON CREEK 35 DEVINE RIDGE SOUTH

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MOSQUITO FLAT, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 19 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
DEVINE RIDGE NORTH QUADRANGLE
SHEET NUMBER 20 OF 221

119° 00′ 00″ — 118° 57′ 30″ — R. 31 E. — R. 32 E. — 118° 55′ 00″ — 118° 52′ 30″

43° 52′ 30″ — T. 19 S. — T. 20 S.

43° 50′ 00″

43° 47′ 30″

43° 45′ 00″ — T. 21 S.

3 39 000m E — 3 40 — 3 41 — 3 42 — 3 43 — 3 44 — 3 45 — 3 46 — 3 47 — 3 48 — 3 49 000m E

4859 — 4858 — 4857 — 4856 000m N — 4855 — 4854 — 4853 — 4852 — 4851 — 4850 — 4849 — 4848 — 4847 — 4846 000m N

MALHEUR NATIONAL FOREST BOUNDARY

Fiqua Creek — Trout Creek — North Fork Trout Creek — South Fork Trout Creek — East Trout Creek — Stanbary Creek — Creek — Gobblers Knob

395

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

	7	8
19		21
34	35	36

7 TROUT CREEK
8 CALAMITY BUTTE
19 MOSQUITO FLAT
21 TELEPHONE BUTTE
34 POISON CREEK
35 DEVINE RIDGE SOUTH
36 HARNEY

INDEX TO ADJOINING 7.5 MAPS

DEVINE RIDGE NORTH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 20 OF 221

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UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
TELEPHONE BUTTE QUADRANGLE
SHEET NUMBER 21 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

7	8	9
20		22
35	36	37

7 TROUT CREEK
8 CALAMITY BUTTE
9 VAN
20 DEVINE RIDGE NORTH
22 CRAFT POINT
35 DEVINE RIDGE SOUTH
36 HARNEY
37 BUCHANAN

INDEX TO ADJOINING 7.5 MAPS

TELEPHONE BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 21 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
CRAFT POINT QUADRANGLE
SHEET NUMBER 22 OF 221

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

8	9	10
21		23
36	37	38

8 CALAMITY BUTTE
9 VAN
10 MOFFIT TABLE
21 TELEPHONE BUTTE
23 HOUSE BUTTE
36 HARNEY
37 BUCHANAN
38 STINKINGWATER PASS

INDEX TO ADJOINING 7.5 MAPS

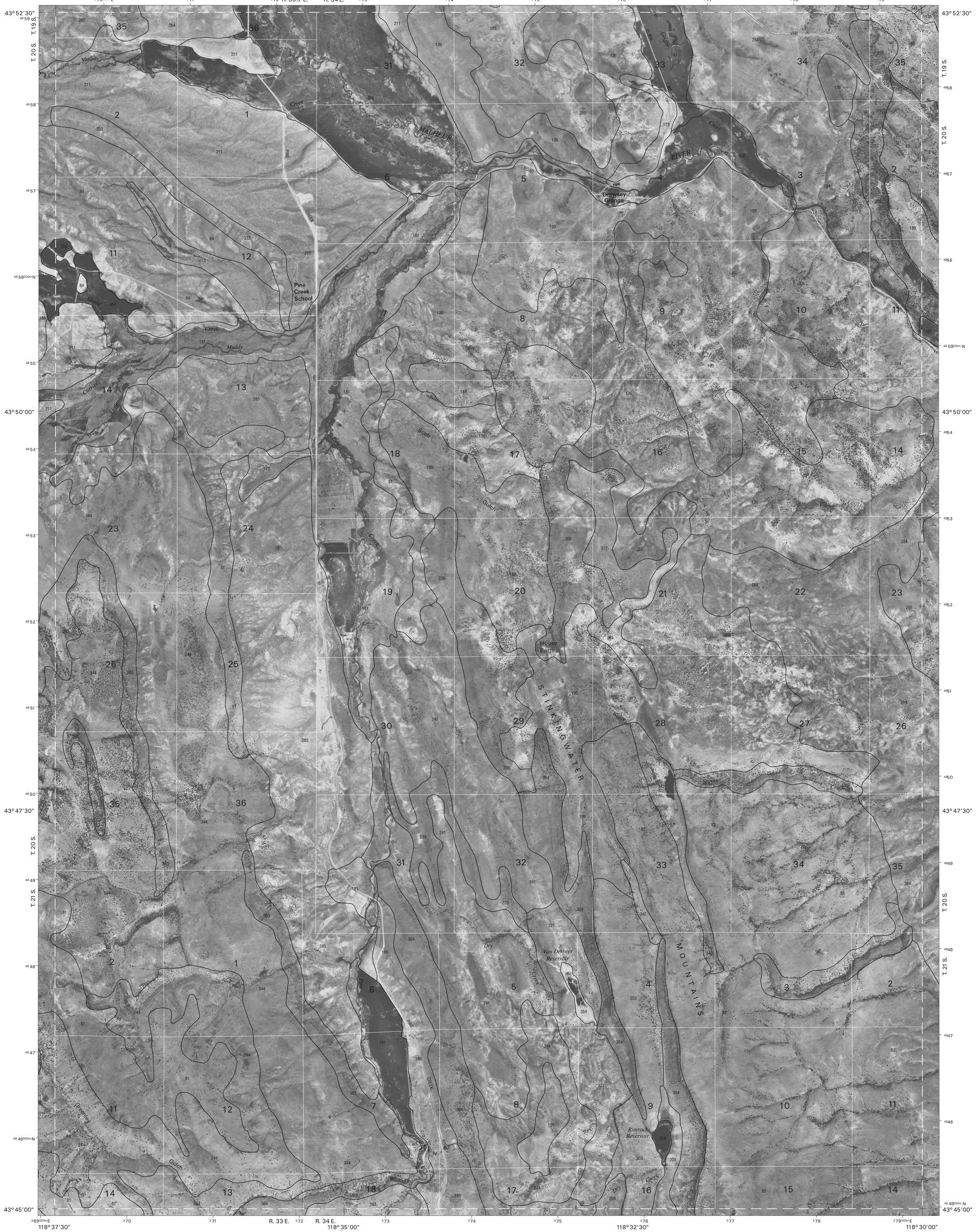
CRAFT POINT, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 22 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
HOUSE BUTTE QUADRANGLE
SHEET NUMBER 23 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

9	10	11	9 VAN 10 MOFFIT TABLE 11 OTIS MOUNTAIN
22		24	22 CRAFT POINT 24 DREWSEY
37	38	39	37 BUCHANAN 38 STINKINGWATER PASS 39 BARTLETT MOUNTAIN

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HOUSE BUTTE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
DREWSEY QUADRANGLE
SHEET NUMBER 24 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

10	11	12
23		25
38	39	40

10 MOFFIT TABLE
11 OTIS MOUNTAIN
12 COTTONWOOD RESERVOIR
23 HOUSE BUTTE
25 DRINKWATER PASS
38 STINKINGWATER PASS
39 BARTLETT MOUNTAIN
40 UPTON MOUNTAIN

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DREWSEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 24 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
DRINKWATER PASS QUADRANGLE
SHEET NUMBER 25 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

11	12	13	11 OTIS MOUNTAIN 12 COTTONWOOD RESERVOIR 13 BEULAH
24		26	24 DREWSEY 26 PETES MOUNTAIN
39	40	41	39 BARTLETT MOUNTAIN 40 UPTON MOUNTAIN 41 SELLE GAP

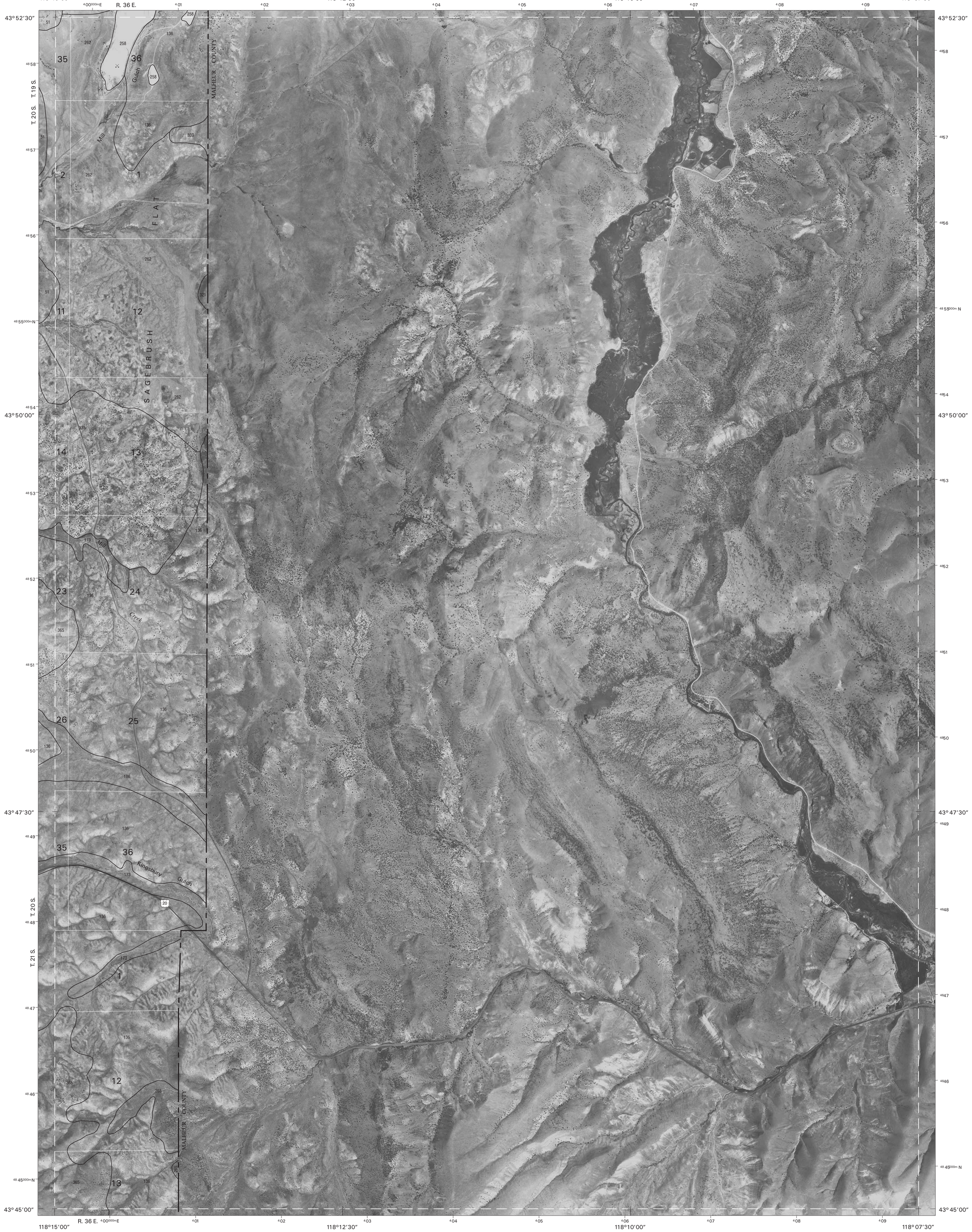
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DRINKWATER PASS, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 25 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
PETES MOUNTAIN QUADRANGLE
SHEET NUMBER 26 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

12	13		12 COTTONWOOD RESERVOIR 13 BEULAH
25			25 DRINKWATER PASS
40	41		40 UPTON MOUNTAIN 41 SELLE GAP

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PETES MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 26 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
DUST BOWL QUADRANGLE
SHEET NUMBER 27 OF 221

120° 00′ 00″ | 119° 57′ 30″ | 119° 55′ 00″ | 119° 52′ 30″

43° 45′ 00″ | 43° 42′ 30″ | 43° 40′ 00″ | 43° 37′ 30″

CROOK COUNTY

DESCHUTES COUNTY

Juniper Spring

Swamp Creek

Bulger Creek

Wordell Ridge

T. 22 S.

R. 24 E.

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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28 BULGER RIDGE
42 HAT BUTTE
43 POTATO HILLS

DUST BOWL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 27 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
BULGER RIDGE QUADRANGLE
SHEET NUMBER 28 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

		14
27		29
42	43	44

14 BUCK SPRING
27 DUST BOWL
29 CAMP CURREY SPRING
42 HAT BUTTE
43 POTATO HILLS
44 SUNTEX

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BULGER RIDGE, OREGON

7.5 MINUTE SERIES
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UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
CAMP CURREY SPRING QUADRANGLE
SHEET NUMBER 29 OF 221

119° 45′ 00″ | 119° 42′ 30″ | 119° 40′ 00″ | 119° 37′ 30″
43° 45′ 00″ | 43° 42′ 30″ | 43° 40′ 00″ | 43° 37′ 30″
R. 25 E. | R. 26 E.
T. 21 S. | T. 22 S.
279000m E | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287 | 288000m E
4847 | 4846 | 4845 | 4844000m N | 4843 | 4842 | 4841 | 4840 | 4839 | 4838 | 4837 | 4836 | 4835 | 4834000m N

OCHOCO NATIONAL FOREST BOUNDARY

Chapin Table
Sawhill
Creek
Dairy
Creek
Upper
Silver
Valley
Creek
Wickiup
Creek
Rough
Creek
Nicoll
Creek
Rimrock
Hill
Dry Lake
Ryegrass
Creek
RYEGRASS FLAT
North
Fork
Mud Flat
Chickahominy
Creek
Silver
Creek
Valley

17 | 20 | 30 | 29 | 36 | 31 | 32 | 2 | 1 | 6 | 5 | 8 | 9 | 10 | 11 | 12 | 7 | 8 | 17 | 16 | 15 | 14 | 13 | 18 | 17 | 20 | 21 | 22 | 23 | 24 | 19 | 20 | 29 | 28 | 27 | 26 | 25 | 30 | 29 | 32 | 33 | 34 | 35 | 36 | 31 | 32

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

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1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

	14	15
28		30
43	44	45

14 BUCK SPRING
15 DONNELLY BUTTE
28 BULGER RIDGE
30 DRY MOUNTAIN
43 POTATO HILLS
44 SUNTEX
45 RILEY

INDEX TO ADJOINING 7.5 MAPS

CAMP CURREY SPRING, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 29 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
DRY MOUNTAIN QUADRANGLE
SHEET NUMBER 30 OF 221

119° 37′ 30″ — 119° 35′ 00″ — 119° 32′ 30″ — 119° 30′ 00″
R. 26 E. — R. 27 E.
43° 45′ 00″ — 43° 42′ 30″ — 43° 40′ 00″ — 43° 37′ 30″
T. 21 S. — T. 22 S.

Silver Creek
Wickiup Creek
Clarks Cr
Egypt Creek
Mitch Canyon
Miller Canyon
Dick Creek
UPPER VALLEY
DRY MOUNTAIN
4130
OCHOCO NATIONAL FOREST BOUNDARY

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

14	15	16	14 BUCK SPRING 15 DONNELLY BUTTE 16 BEAR CANYON BUTTE
29		31	29 CAMP CURREY SPRING 31 EGYPT CANYON 44 SUNTEX
44	45	46	45 RILEY 46 OAKERMAN LAKES

INDEX TO ADJOINING 7.5 MAPS

DRY MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 30 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
EGYPT CANYON QUADRANGLE
SHEET NUMBER 31 OF 221

119° 30′ 00″ — 299000mE — 119° 27′ 30″ — 119° 25′ 00″ — 119° 22′ 30″
43° 45′ 00″ — 43° 42′ 30″ — 43° 40′ 00″ — 43° 37′ 30″
48 46 — 48 45 — 48 44 — 48 43000mN — 48 42 — 48 41 — 48 40 — 48 39 — 48 38 — 48 37 — 48 36 — 48 35 — 48 34 — 48 33000mN
3 00 — 3 01 — 3 02 — 3 03 — 3 04 — 3 05 — 3 06 — 3 07 — 3 08
R. 27 E. — R. 28 E.
T. 21 S. — T. 22 S.

OCHOCO NATIONAL FOREST BOUNDARY
FOREST BOUNDARY
4130
Ochoco Mountains
Mitch Canyon
Battery Canyon
Gumboot Canyon
Badger Canyon
Miller Dick Ridge Canyon
Badger Ridge Canyon

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

15	16	17	15 DONNELLY BUTTE 16 BEAR CANYON BUTTE 17 HUGHET VALLEY
30		32	30 DRY MOUNTAIN 32 HOLMES CANYON
45	46	47	45 RILEY 46 OAKERMAN LAKES 47 SAGE HEN HILL

INDEX TO ADJOINING 7.5 MAPS

EGYPT CANYON, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 31 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
HOLMES CANYON QUADRANGLE
SHEET NUMBER 32 OF 221

119°22′30″ 119°20′00″ 119°17′30″ 119°15′00″

43°45′00″ 43°42′30″ 43°40′00″ 43°37′30″

R. 28 E. R. 29 E.

T. 21 S. T. 22 S.

OCHOCO NATIONAL FOREST BOUNDARY

Holmes Canyon
Carlon Canyon
Skull Creek
Cricket Creek
Horse Spring Canyon
Skull Creek Reservoir
Horton Canyon
Cricket Creek
Winslow Canyon Creek
Willow Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

16	17	18	16 BEAR CANYON BUTTE 17 HUGHET VALLEY 18 LANDING CREEK
31		33	31 EGYPT CANYON 33 BURNS NW
46	47	48	46 OAKERMAN LAKES 47 SAGE HEN HILL 48 BURNS BUTTE

INDEX TO ADJOINING 7.5 MAPS

HOLMES CANYON, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
BURNS NW QUADRANGLE
SHEET NUMBER 33 OF 221

119°15′00″ 119°12′30″ 119°10′00″ 119°07′30″
43°45′00″ 43°42′30″ 43°40′00″ 43°37′30″
R. 29 E. R. 30 E.
T. 21 S. T. 22 S.
319 000mE 320 321 322 323 324 325 326 327 328 329 000mE
4846 4845 4844 4843 000m N 4842 4841 4840 4839 4838 4837 4836 4835 4834 4833 000m N

Squaw Creek
Slickear Creek
Lake Creek
Churn Creek
Boulder Canyon
Skull Creek
Boone Canyon
Cave Gulch
Silvies River
Charlie Creek
Green Flat Reservoir
East Mud Ridge
Willow Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

17	18	19	17 HUGHET VALLEY 18 LANDING CREEK 19 MOSQUITO FLAT
32		34	32 HOLMES CANYON 34 POISON CREEK
47	48	49	47 SAGE HEN HILL 48 BURNS BUTTE 49 BURNS

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BURNS NW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 33 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
POISON CREEK QUADRANGLE
SHEET NUMBER 34 OF 221

119° 07′ 30″ — 119° 05′ 00″ — R. 30 E. — R. 31 E. — 119° 02′ 30″ — 119° 00′ 00″

43° 45′ 00″ — 43° 42′ 30″ — 43° 40′ 00″ — 43° 37′ 30″

T. 22 S. T. 21 S.

MAHOGANY RIDGE · Garden · Devils · Curry · Gordon · Thousand · Spring · Creek · Canyon · Fenwick · Hatter · Canyon · Poison · Black · Canyon · CANYON · DEVINE · Creek · Creek · Creek · Foley · Foley · RIVER · Slough · SILVIES · Fivemile Dam · Arrowhead Butte · Armtz Reservoir · HARNEY VALLEY

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

18	19	20	18 LANDING CREEK 19 MOSQUITO FLAT 20 DEVINE RIDGE NORTH
33		35	33 BURNS NW 35 DEVINE RIDGE SOUTH
48	49	50	48 BURNS BUTTE 49 BURNS 50 POISON CREEK SLOUGH

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POISON CREEK, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
DEVINE RIDGE SOUTH QUADRANGLE
SHEET NUMBER 35 OF 221

119°00′00″ 3 39 000mE 118°57′30″ 3 43 R. 31 E. 3 44 R. 32 E. 118°55′00″ 3 46 3 47 3 48 3 49 000mE 118°52′30″

43°45′00″ 48 45 48 44 48 43 48 42 000m N 43°42′30″ 48 41 T. 22 S. T. 21 S. 48 40 48 39 48 38 48 37 43°40′00″ 48 36 48 35 48 34 48 33 48 32 000m N 43°37′30″

MALHEUR NATIONAL FOREST BOUNDARY

Thomas Canyon
Devine Canyon
Creek
RIDGE
Fletcher
Canyon
Byrd
DEVINE
CANYON
GRADON
Creek
Poison
Soldier
TUDOR
CANYON
Creek
HARNEY VALLEY
SAND HILL
HARNEY VALLEY
HARNEY VALLEY
395

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

19	20	21	19 MOSQUITO FLAT 20 DEVINE RIDGE NORTH 21 TELEPHONE BUTTE
34		36	34 POISON CREEK 36 HARNEY
49	50	51	49 BURNS 50 POISON CREEK SLOUGH 51 NINEMILE SLOUGH

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DEVINE RIDGE SOUTH, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 35 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
HARNEY QUADRANGLE
SHEET NUMBER 36 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

20	21	22
35		37
50	51	52

20 DEVINE RIDGE NORTH
21 TELEPHONE BUTTE
22 CRAFT POINT
35 DEVINE RIDGE SOUTH
37 BUCHANAN
50 POISON CREEK SLOUGH
51 NINEMILE SLOUGH
52 CARSON POINT

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HARNEY, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
BUCHANAN QUADRANGLE
SHEET NUMBER 37 OF 221

118° 45′ 00″ — 118° 42′ 30″ — 118° 40′ 00″ — 118° 37′ 30″
359000mE — 360 — 361 — R. 32½ E. — 362 — R. 33 E. — 363 — 364 — 365 — 366 — 367 — 368 — 369000mE
43° 45′ 00″ — 43° 42′ 30″ — 43° 40′ 00″ — 43° 37′ 30″
4845 — 4844 — 4843 — 48 42000mN — 4841 — 4840 — 4839 — 4838 — 4837 — 4836 — 4835 — 4834 — 4833 — 48 32000mN

MALHEUR NATIONAL FOREST BOUNDARY

T. 22 S. — T. 21 S.

Pine Creek
Cow Creek
Cabin Spring
Rock Creek
Rattlesnake Spring
Forseet Spring
Temple Spring
Canyon
East Cow Creek
Jones Creek
Corcoran Reservoir
Little Rock Creek
OARD FLAT
GRAVEL RIDGES
Buchanan
20

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

21	22	23
36		38
51	52	53

21 TELEPHONE BUTTE
22 CRAFT POINT
23 HOUSE BUTTE
36 HARNEY
38 STINKINGWATER PASS
51 NINEMILE SLOUGH
52 CARSON POINT
53 MAHON CREEK

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BUCHANAN, OREGON

7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
STINKINGWATER PASS QUADRANGLE
SHEET NUMBER 38 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

22	23	24	22 CRAFT POINT 23 HOUSE BUTTE 24 DREWSEY
37		39	37 BUCHANAN 39 BARTLETT MOUNTAIN
52	53	54	52 CARSON POINT 53 MAHON CREEK 54 COLEMAN MOUNTAIN

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STINKINGWATER PASS, OREGON

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UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
BARTLETT MOUNTAIN QUADRANGLE
SHEET NUMBER 39 OF 221

118°30′00″ 118°27′30″ 118°25′00″ 118°22′30″
43°45′00″ 43°42′30″ 43°40′00″ 43°37′30″
R. 34 E. R. 35 E.
T. 21 S. T. 22 S.

North Beede Reservoir
South Beede Reservoir
Stinkingwater Creek
O'Toole Spring
Miler Spring
BARTLETT MOUNTAIN
McMullen Creek
Borderline Spring
Little Stinkingwater Creek
Clear Creek
Newell Creek
Connolly Basin

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

23	24	25
38		40
53	54	55

23 HOUSE BUTTE
24 DREWSEY
25 DRINKWATER PASS
38 STINKINGWATER PASS
40 UPTON MOUNTAIN
53 MAHON CREEK
54 COLEMAN MOUNTAIN
55 WARM SPRINGS CREEK

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BARTLETT MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 39 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
UPTON MOUNTAIN QUADRANGLE
SHEET NUMBER 40 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

24	25	26	24 DREWSEY 25 DRINKWATER PASS 26 PETES MOUNTAIN
39		41	39 BARTLETT MOUNTAIN 41 SELLE GAP
54	55	56	54 COLEMAN MOUNTAIN 55 WARM SPRINGS CREEK 56 WARM SPRINGS RESERVOIR

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UPTON MOUNTAIN, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
SELLE GAP QUADRANGLE
SHEET NUMBER 41 OF 221

118°15′00″ 118°12′30″ 118°10′00″ 118°07′30″

43°45′00″ 43°42′30″ 43°40′00″ 43°37′30″

R. 36 E.

MALHEUR COUNTY

T. 21 S.

T. 22 S.

Chimney Creek

WARM SPRINGS RESERVOIR

13 24 25 36 1 12 13 24 25

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

25	26		25 DRINKWATER PASS 26 PETES MOUNTAIN
40			40 UPTON MOUNTAIN
55	56		55 WARM SPRINGS CREEK 56 WARM SPRINGS RESERVOIR

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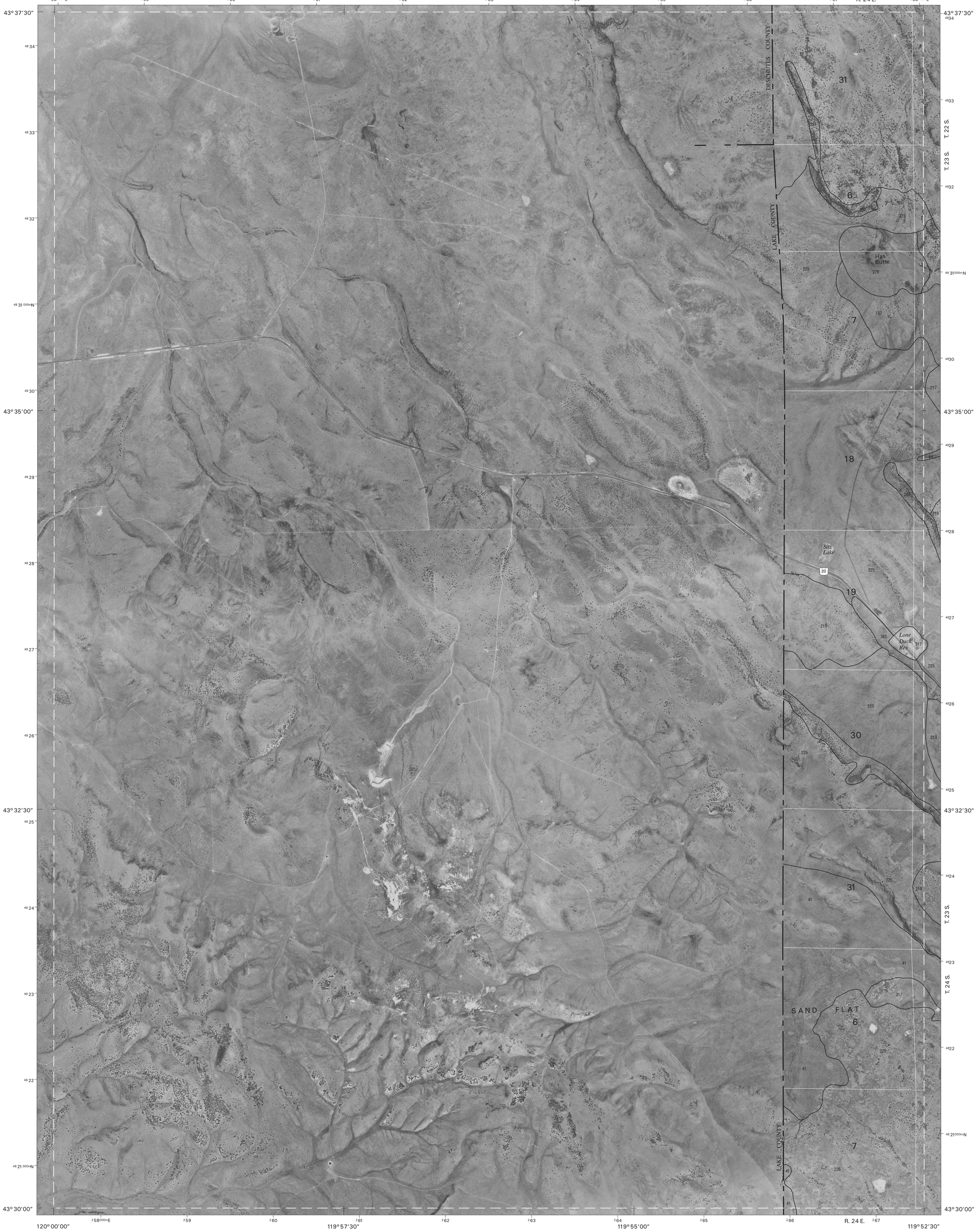
SELLE GAP, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 41 OF 221

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HARNEY COUNTY AREA, OREGON
HAT BUTTE QUADRANGLE
SHEET NUMBER 42 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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	27	28	27 DUST BOWL 28 BULGER RIDGE
		43	43 POTATO HILLS
	57	58	57 ROUND TOP BUTTE 58 HAY LAKE

HAT BUTTE, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
POTATO HILLS QUADRANGLE
SHEET NUMBER 43 OF 221

119°52′30″ 119°50′00″ 119°47′30″ 119°45′00″
R. 24 E. R. 25 E.
43°37′30″ 43°35′00″ 43°32′30″ 43°30′00″
T. 22 S. T. 23 S. T. 24 S.
4831 000mN 4821 000mN
2680 000mE 2690 2700 2710 2720 2730 2740 2750 2760 2770 2780 000mE
4834 4833 4832 4831 4830 4829 4828 4827 4826 4825 4824 4823 4822 4821 4820 000mN

POTATO HILLS
Chickahominy
South Fork Chickahominy Creek
Sand Flat
Rimrock Lake
BASIN AND RANGE
GREAT EXPERIMENTAL NORTHERN Juniper Ridge

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

27	28	29
42		44
57	58	59

INDEX TO ADJOINING 7.5 MAPS

27 DUST BOWL
28 BULGER RIDGE
29 CAMP CURREY SPRING
42 HAT BUTTE
44 SUNTEX
57 ROUND TOP BUTTE
58 HAY LAKE
59 SQUAW BUTTE

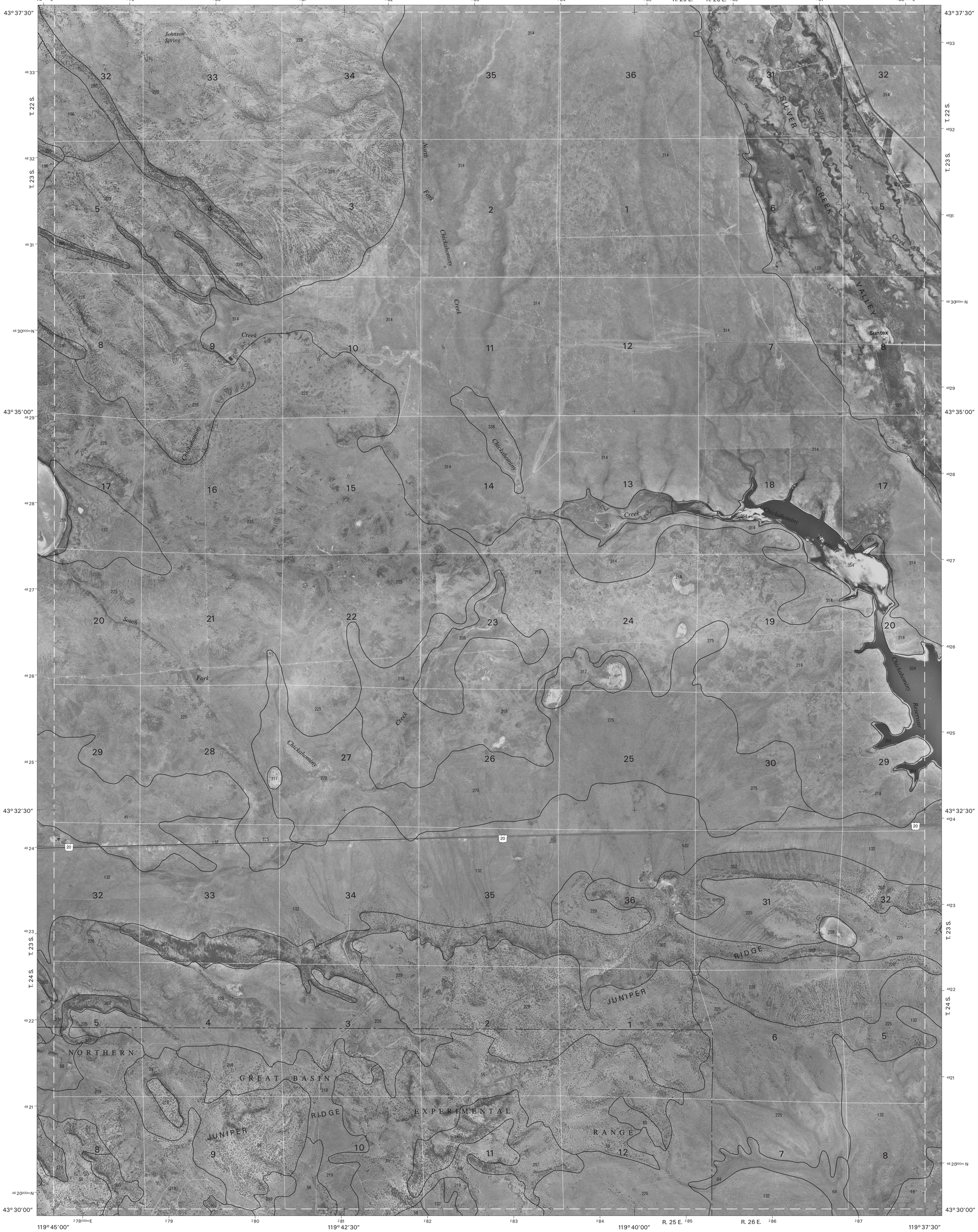
POTATO HILLS, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 43 OF 221

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HARNEY COUNTY AREA, OREGON
SUNTEX QUADRANGLE
SHEET NUMBER 44 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

28	29	30
43		45
58	59	60

28 BULGER RIDGE
29 CAMP CURREY SPRING
30 DRY MOUNTAIN
43 POTATO HILLS
45 RILEY
58 HAY LAKE
59 SQUAW BUTTE
60 CAPEHART LAKE

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SUNTEX, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
RILEY QUADRANGLE
SHEET NUMBER 45 OF 221

119° 37′ 30″ — 119° 35′ 00″ — 119° 32′ 30″ — 119° 30′ 00″
R. 26 E. — R. 27 E.
43° 37′ 30″ — 43° 35′ 00″ — 43° 32′ 30″ — 43° 30′ 00″
T. 22 S. — T. 23 S. — T. 24 S.

Gumboot Canyon
DICK MILLER CANYON
SILVER CREEK
Silver Creek
Suntex School
Chickahominy Reservoir
Chickahominy Creek
VALLEY Creek
Riley
Shields Butte
JUNIPER RIDGE

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

29	30	31	29 CAMP CURREY SPRING 30 DRY MOUNTAIN 31 EGYPT CANYON
44		46	44 SUNTEX 46 OAKERMAN LAKES
59	60	61	59 SQUAW BUTTE 60 CAPEHART LAKE 61 MOON RESERVOIR

INDEX TO ADJOINING 7.5 MAPS

RILEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 45 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
OAKERMAN LAKES QUADRANGLE
SHEET NUMBER 46 OF 221

119° 30′ 00″ — 299000mE — 119° 27′ 30″ — R. 27 E. — 119° 25′ 00″ — R. 28 E. — 119° 22′ 30″

43° 37′ 30″ — 43° 35′ 00″ — 43° 32′ 30″ — 43° 30′ 00″

T. 22 S. — T. 23 S. — T. 24 S.

48 33 — 48 32 — 48 31 — 48 30000mN — 48 29 — 48 28 — 48 27 — 48 26 — 48 25 — 48 24 — 48 23 — 48 22 — 48 21 — 48 20000mN

Gumboot Canyon
Zoglmann Reservoir
OCHOCO NATIONAL FOREST BOUNDARY
Maude Oakerman Spring
Second Flat
Dick Miller Canyon
Rock Quarry Canyon Reservoir
Swimming Hole Reservoir
Elliott Canyon
Rock Quarry Canyon
Chickahominy Creek
Silver Creek
SILVER CREEK VALLEY

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

30	31	32
45		47
60	61	62

30 DRY MOUNTAIN
31 EGYPT CANYON
32 HOLMES CANYON
45 RILEY
47 SAGE HEN HILL
60 CAPEHART LAKE
61 MOON RESERVOIR
62 PALOMINO BUTTES

INDEX TO ADJOINING 7.5 MAPS

OAKERMAN LAKES, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 46 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
SAGE HEN HILL QUADRANGLE
SHEET NUMBER 47 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

31	32	33
46		48
61	62	63

31 EGYPT CANYON
32 HOLMES CANYON
33 BURNS NW
46 OAKERMAN LAKES
48 BURNS BUTTE
61 MOON RESERVOIR
62 PALOMINO BUTTES
63 WEAVER LAKE

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SAGE HEN HILL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 47 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
BURNS BUTTE QUADRANGLE
SHEET NUMBER 48 OF 221

119°15′00″ 119°12′30″ 119°10′00″ 119°07′30″
43°37′30″ 43°35′00″ 43°32′30″ 43°30′00″
R. 29 E. R. 30 E.
T. 22 S. T. 23 S. T. 24 S.
318 000mE 319 320 321 322 323 324 325 326 327 328 000mE
4829 000m N 4819 000m N
4832 4831 4830 4828 4827 4826 4825 4824 4823 4822 4821 4820

WILLOW CREEK FLATS
SAGE HEN VALLEY
East Willow Creek
Willow Creek
West Willow Creek
Willow Creek
Creek
Brush Canyon
Sage Hen Creek
Burns Butte
Willow Creek
20 395

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

32	33	34	32 HOLMES CANYON 33 BURNS NW 34 POISON CREEK
47		49	47 SAGE HEN HILL 49 BURNS
62	63	64	62 PALOMINO BUTTES 63 WEAVER LAKE 64 DOG MOUNTAIN

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BURNS BUTTE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
BURNS QUADRANGLE
SHEET NUMBER 49 OF 221

119° 07′ 30″ · 119° 05′ 00″ · 119° 02′ 30″ · 119° 00′ 00″
43° 37′ 30″ · 43° 35′ 00″ · 43° 32′ 30″ · 43° 30′ 00″
R. 30 E. · R. 31 E.
T. 22 S. · T. 23 S. · T. 24 S.

BURNS
INDIAN RESERVATION
Indian Village
Hines
Grange Hall
Oregon Agricultural Experimental Station
Sage Hen Valley
Potters Swamp
Silvies River
Silvies
Foley
Poison Cr.
Slough
Whitins Slough
River
Newman Slough
East Fork Silvies River
Wesy
Mc Cree Slough
Chapman
Sage Hen Cr.

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

33	34	35
48		50
63	64	65

33 BURNS NW
34 POISON CREEK
35 DEVINE RIDGE SOUTH
48 BURNS BUTTE
50 POISON CREEK SLOUGH
63 WEAVER LAKE
64 DOG MOUNTAIN
65 REDESS

INDEX TO ADJOINING 7.5 MAPS

BURNS, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 49 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
POISON CREEK SLOUGH QUADRANGLE
SHEET NUMBER 50 OF 221

119° 00′ 00″ | 3 39 000m E | 3 40 | 3 41 | 118° 57′ 30″ | 3 42 | 3 43 | R. 31 E. | R. 32 E. | 3 44 | 3 45 | 118° 55′ 00″ | 3 46 | 3 47 | 3 48 | 118° 52′ 30″

43° 37′ 30″ | 48 31 | T. 22 S. | T. 23 S. | 48 30 | 48 29 | 48 28 000m N | 43° 35′ 00″ | 48 27 | 48 26 | 48 25 | 48 24 | 48 23 | 43° 32′ 30″ | 48 22 | T. 23 S. | T. 24 S. | 48 21 | 48 20 | 48 19 | 48 18 000m N | 43° 30′ 00″

SAND HILL
HARNEY VALLEY
Burns Municipal Airport
Foley Slough
Poison Creek
Creek
Slough
East Fork Silvies River
Silvies River
Slough
Chapman Slough
Ehmree Slough

20 78

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

34	35	36	34 POISON CREEK 35 DEVINE RIDGE SOUTH 36 HARNEY
49		51	49 BURNS 51 NINEMILE SLOUGH
64	65	66	64 DOG MOUNTAIN 65 REDESS 66 LAWEN

INDEX TO ADJOINING 7.5 MAPS

POISON CREEK SLOUGH, OREGON

7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
NINEMILE SLOUGH QUADRANGLE
SHEET NUMBER 51 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

35	36	37
50		52
65	66	67

35 DEVINE RIDGE SOUTH
36 HARNEY
37 BUCHANAN
50 POISON CREEK SLOUGH
52 CARSON POINT
65 REDESS
66 LAWEN
67 WARM SPRINGS BUTTE

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NINEMILE SLOUGH, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 51 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
CARSON POINT QUADRANGLE
SHEET NUMBER 52 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

36	37	38
51		53
66	67	68

36 HARNEY
37 BUCHANAN
38 STINKINGWATER PASS
51 NINEMILE SLOUGH
53 MAHON CREEK
66 LAWEN
67 WARM SPRINGS BUTTE
68 CRANE

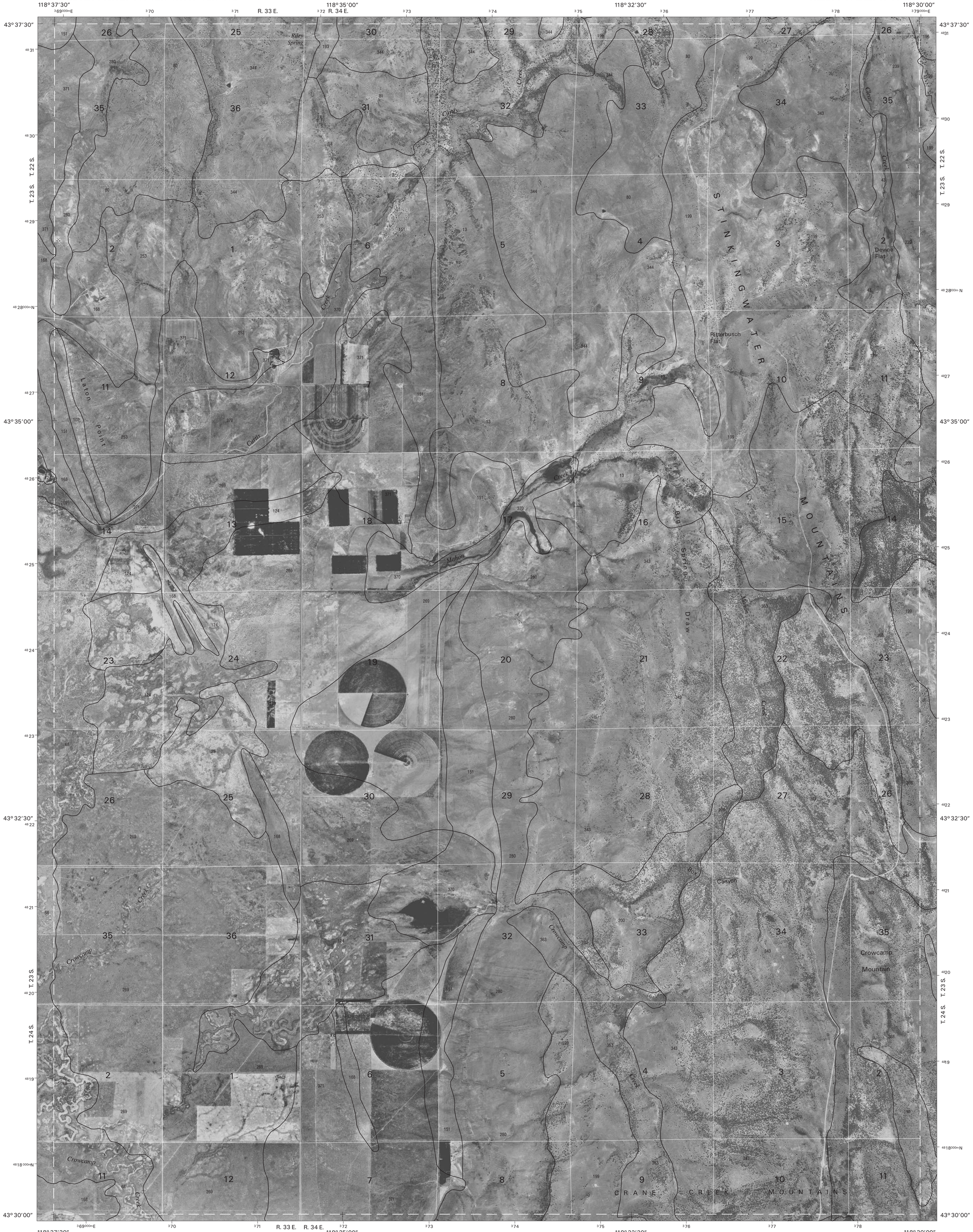
CARSON POINT, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 52 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
MAHON CREEK QUADRANGLE
SHEET NUMBER 53 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

37	38	39
52		54
67	68	69

37 BUCHANAN
38 STINKINGWATER PASS
39 BARTLETT MOUNTAIN
52 CARSON POINT
54 COLEMAN MOUNTAIN
67 WARM SPRINGS BUTTE
68 CRANE
69 TIN CAN RIDGE

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MAHON CREEK, OREGON

7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
COLEMAN MOUNTAIN QUADRANGLE
SHEET NUMBER 54 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

38	39	40	38 STINKINGWATER PASS 39 BARTLETT MOUNTAIN 40 UPTON MOUNTAIN 53 MAHON CREEK 55 WARM SPRINGS CREEK 68 CRANE 69 TIN CAN RIDGE 70 DUNNEAN
53		55	
68	69	70	

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COLEMAN MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 54 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
WARM SPRINGS CREEK QUADRANGLE
SHEET NUMBER 55 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

39	40	41
54		56
69	70	71

39 BARTLETT MOUNTAIN
40 UPTON MOUNTAIN
41 SELLE GAP
54 COLEMAN MOUNTAIN
56 WARM SPRINGS RESERVOIR
69 TIN CAN RIDGE
70 DUNNEAN
71 MCEWEN BUTTE

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WARM SPRINGS CREEK, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 55 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
WARM SPRINGS RESERVOIR QUADRANGLE
SHEET NUMBER 56 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

40	41	40 UPTON MOUNTAIN 41 SELLE GAP
55		55 WARM SPRINGS CREEK
70	71	70 DUNNEAN 71 MCEWEN BUTTE

INDEX TO ADJOINING 7.5 MAPS

WARM SPRINGS RESERVOIR, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 56 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
ROUND TOP BUTTE QUADRANGLE
SHEET NUMBER 57 OF 221

120° 00′ 00″ | 119° 57′ 30″ | 119° 55′ 00″ | 119° 52′ 30″
43° 30′ 00″ | 43° 27′ 30″ | 43° 25′ 00″ | 43° 22′ 30″
258000mE | 259 | 260 | 261 | 262 | 263 | 264 | 265 | 266 | R. 24 E. | 267
4820 | 4819 | 4818 | 4817000mN | 4816 | 4815 | 4814 | 4813 | 4812 | 4811 | 4810 | 4809 | 4808 | 4807000mN

T. 25 S. | T. 24 S.

LAKE COUNTY | LAKE COUNTY

MOUNTAIN SHEEP

Maneuver Road Reservoir

7 | 8 | 18 | 19 | 30 | 31 | 6 | 5 | 7 | 8 | 18 | 19 | 30

41 | 226 | 259 | 226 | 226 | 132 | 6 | 225 | 132 | 253 | 257 | 257 | 257 | 277 | 41 | 320 | 351 | 257 | 229 | 257 | 320 | 155

257000mE | 267000mE

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

	42	43
		58
	72	73

42 HAT BUTTE
43 POTATO HILLS
58 HAY LAKE
72 WAGONTIRE MOUNTAIN WEST
73 WAGONTIRE MOUNTAIN EAST

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ROUND TOP BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 57 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
HAY LAKE QUADRANGLE
SHEET NUMBER 58 OF 221

119°52′30″ 119°50′00″ 119°47′30″ 119°45′00″
43°30′00″ 43°27′30″ 43°25′00″ 43°22′30″
R. 24 E. R. 25 E.
T. 24 S. T. 25 S.
268000mE 269 270 271 272 273 274 275 276 277 267000mE
4820 4819 4818 4817000mN 4816 4815 4814 4813 4812 4811 4810 4809 4808 4807000mN 4806000mN

Rimrock Lake
Ryegrass Lake
Hay Lake
Wheatgrass Lake
Hole in Ground
Poteet Spring
Egli Reservoir
Spring Canyon
Juniper Ridge
Rocky Draw
Tank Creek
Big Egli Ridge
SHEEP MOUNTAIN
GREAT BASIN EXPERIMENTAL RANGE
NORTHERN

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000
FEET
1 0 1
KILOMETERS

42	43	44	42 HAT BUTTE 43 POTATO HILLS 44 SUNTEX
57		59	57 ROUND TOP BUTTE 59 SQUAW BUTTE
72	73	74	72 WAGONTIRE MOUNTAIN WEST 73 WAGONTIRE MOUNTAIN EAST 74 ALEC BUTTE

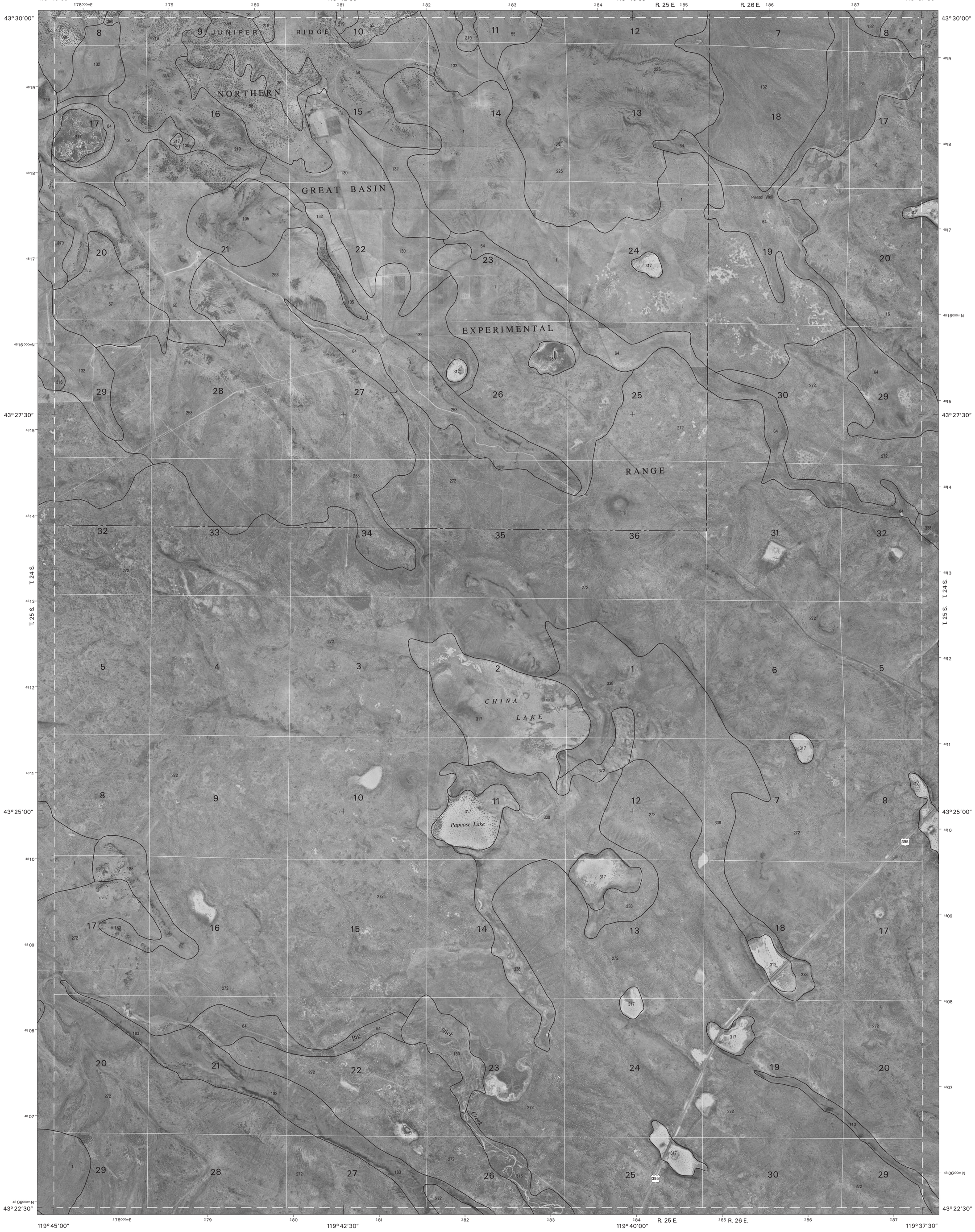
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HAY LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 58 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
SQUAW BUTTE QUADRANGLE
SHEET NUMBER 59 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

43	44	45
58		60
73	74	75

43 POTATO HILLS
44 SUNTEX
45 RILEY
58 HAY LAKE
60 CAPEHART LAKE
73 WAGONTIRE MOUNTAIN EAST
74 ALEC BUTTE
75 LAKE ON THE TRAIL

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SQUAW BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 59 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
CAPEHART LAKE QUADRANGLE
SHEET NUMBER 60 OF 221

119° 37′ 30″ — 119° 35′ 00″ — 119° 32′ 30″ — 119° 30′ 00″
R. 26 E. — R. 27 E.
43° 30′ 00″ — 43° 27′ 30″ — 43° 25′ 00″ — 43° 22′ 30″
T. 24 S. — T. 25 S.

Juniper Ridge
Porcupine Lake
Brick Lake
Bone Lake
Kidney Lake
Coyote Rim
Lookout Butte
Buzzard Lake
CAPEHART LAKE

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

44	45	46	44 SUNTEX 45 RILEY 46 OAKERMAN LAKES
59		61	59 SQUAW BUTTE 61 MOON RESERVOIR
74	75	76	74 ALEC BUTTE 75 LAKE ON THE TRAIL 76 IRON MOUNTAIN FLAT

INDEX TO ADJOINING 7.5 MAPS

CAPEHART LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 60 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
MOON RESERVOIR QUADRANGLE
SHEET NUMBER 61 OF 221

119° 30′ 00″ — 119° 27′ 30″ — 119° 25′ 00″ — 119° 22′ 30″
R. 27 E. — R. 28 E.
43° 30′ 00″ — 43° 27′ 30″ — 43° 25′ 00″ — 43° 22′ 30″
T. 24 S. — T. 25 S.

SILVER CREEK VALLEY
Silver Creek
Battleground Buttes
Dusenberry Lake
Hole in the Ground
COYOTE RIM
MOON RESERVOIR
SILVER LAKE

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

45	46	47
60		62
75	76	77

45 RILEY
46 OAKERMAN LAKES
47 SAGE HEN HILL
60 CAPEHART LAKE
62 PALOMINO BUTTES
75 LAKE ON THE TRAIL
76 IRON MOUNTAIN FLAT
77 STINKING LAKE

MOON RESERVOIR, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 61 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
PALOMINO BUTTES QUADRANGLE
SHEET NUMBER 62 OF 221

119°22′30″ 119°20′00″ R. 28 E. 119°17′30″ R. 29 E. 119°15′00″
43°30′00″ 43°27′30″ 43°25′00″ 43°22′30″
T. 24 S. T. 25 S.

Palomino Buttes
Palomino Lake
PALOMINO DOUBLE O ROAD
Grassy Butte
West Chain Lake
Chain Lake
FAY CANYON RIM
Lone Rabbit Waterhole
Silver Creek
WARM SPRINGS VALLEY
Cote Lake
Fay Canyon
Fay Canyon Rim
Sand Hollow

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

46	47	48	46 OAKERMAN LAKES 47 SAGE HEN HILL 48 BURNS BUTTE
61		63	61 MOON RESERVOIR 63 WEAVER LAKE
76	77	78	76 IRON MOUNTAIN FLAT 77 STINKING LAKE 78 NORTHWEST HARNEY LAKE

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PALOMINO BUTTES, OREGON
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SHEET NUMBER 62 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
WEAVER LAKE QUADRANGLE
SHEET NUMBER 63 OF 221

119°15′00″ 119°12′30″ 119°10′00″ 119° 07′30″
43° 30′00″ 43° 27′30″ 43° 25′00″ 43° 22′30″
R. 29 E. R. 30 E.
T. 24 S. T. 25 S.

SAGE HEN VALLEY
Canyon
Scotts
Frank Schmidt Lake
West Chain Lake
Chain Lakes
East Chain Lake
South Chain Lake
Batts Camp Lake
Albert Lake
Weaver Lake
SAND HOLLOW

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

47	48	49
62		64
77	78	79

47 SAGE HEN HILL
48 BURNS BUTTE
49 BURNS
62 PALOMINO BUTTES
64 DOG MOUNTAIN
77 STINKING LAKE
78 NORTHWEST HARNEY LAKE
79 NORTHEAST HARNEY LAKE

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WEAVER LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 63 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
DOG MOUNTAIN QUADRANGLE
SHEET NUMBER 64 OF 221

119° 07′ 30″ — 119° 05′ 00″ — R. 30 E. — R. 31 E. — 119° 02′ 30″ — 119° 00′ 00″

43° 30′ 00″ — 43° 27′ 30″ — 43° 25′ 00″ — 43° 22′ 30″

SAGE HEN VALLEY
Potters Swamp
HARNEY VALLEY
West Fork McGee Slough
Silvies River
Sage Hen Creek
WRIGHTS POINT
SUNSET VALLEY
DOG MOUNTAIN
Lunch Lake
Weaver Spring
205

T. 24 S.
T. 25 S.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

48	49	50
63		65
78	79	80

48 BURNS BUTTE
49 BURNS
50 POISON CREEK SLOUGH
63 WEAVER LAKE
65 REDESS
78 NORTHWEST HARNEY LAKE
79 NORTHEAST HARNEY LAKE
80 THE NARROWS

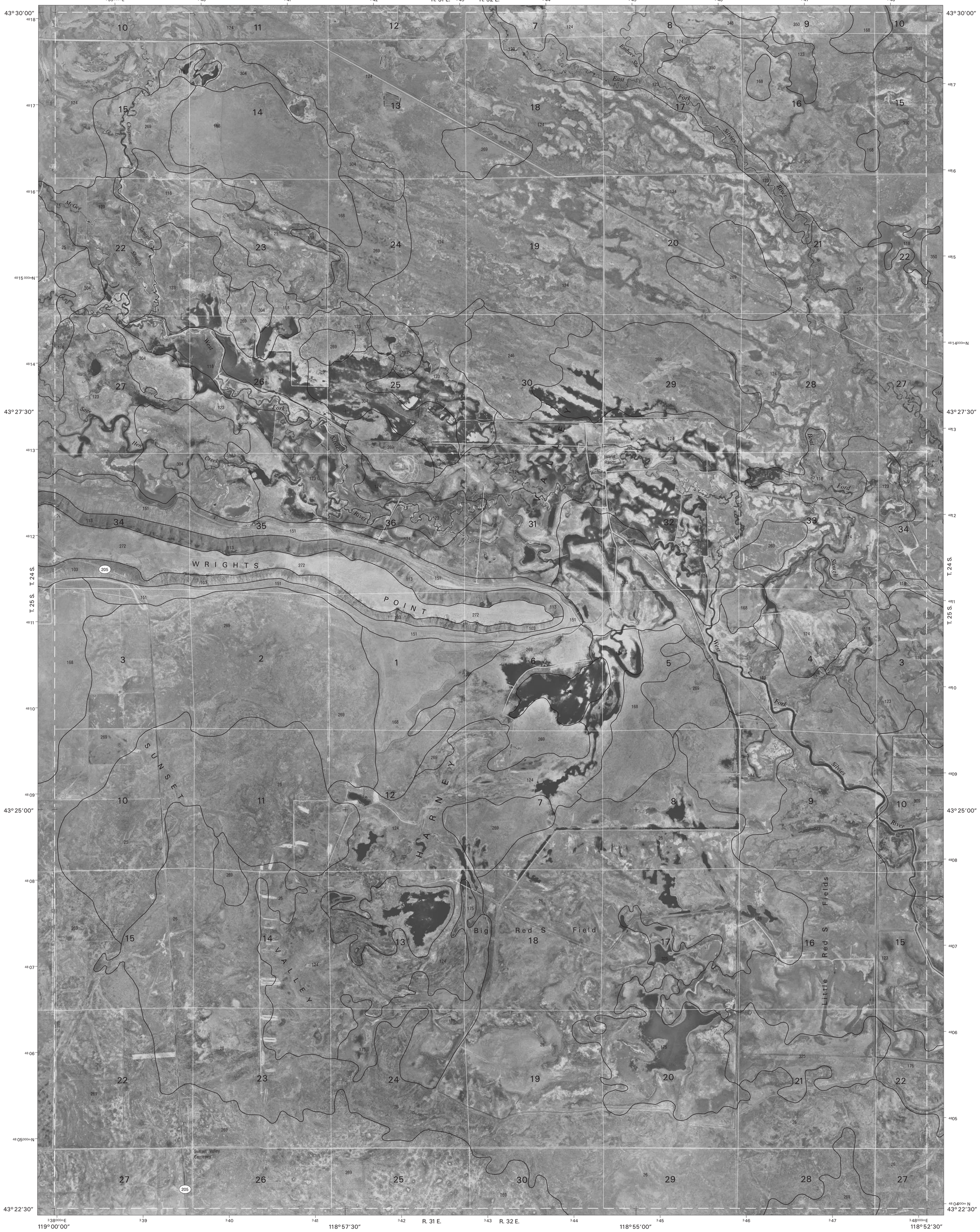
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DOG MOUNTAIN, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
REDESS QUADRANGLE
SHEET NUMBER 65 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

49	50	51
64		66
79	80	81

49 BURNS
50 POISON CREEK SLOUGH
51 NINEMILE SLOUGH
64 DOG MOUNTAIN
66 LAWEN
79 NORTHEAST HARNEY LAKE
80 THE NARROWS
81 MALHEUR LAKE WEST

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REDESS, OREGON
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HARNEY COUNTY AREA, OREGON
LAWEN QUADRANGLE
SHEET NUMBER 66 OF 221

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

50	51	52
65		67
80	81	82

50 POISON CREEK SLOUGH
51 NINEMILE SLOUGH
52 CARSON POINT
65 REDESS
67 WARM SPRINGS BUTTE
80 THE NARROWS
81 MALHEUR LAKE WEST
82 MALHEUR LAKE EAST

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LAWEN, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
WARM SPRINGS BUTTE QUADRANGLE
SHEET NUMBER 67 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

51	52	53
66		68
81	82	83

51 NINEMILE SLOUGH
52 CARSON POINT
53 MAHON CREEK
66 LAWEN
68 CRANE
81 MALHEUR LAKE WEST
82 MALHEUR LAKE EAST
83 NEW PRINCETON

WARM SPRINGS BUTTE, OREGON

7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
CRANE QUADRANGLE
SHEET NUMBER 68 OF 221

118°37′30″ 118°35′00″ 118°32′30″ 118°30′00″
43°30′00″ 43°27′30″ 43°25′00″ 43°22′30″
369000mE 370 371 372 373 374 375 376 377 378
R. 33 E. R. 34 E.
4817 4816 4815 4814000mN 4813 4812 4811 4810 4809 4808 4807 4806 4805 4804000mN
T. 24 S. T. 25 S.

Krueger Field
Willow Basin
Crowcamp Creek
Gorman Creek
Crane Creek
Crane Creek Gap
MOUNTAINS
VALLEY
HARNEY
WARM SPRINGS BUTTE
Crane Butte
Crane
78

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

52	53	54
67		69
82	83	84

52 CARSON POINT
53 MAHON CREEK
54 COLEMAN MOUNTAIN
67 WARM SPRINGS BUTTE
69 TIN CAN RIDGE
82 MALHEUR LAKE EAST
83 NEW PRINCETON
84 CIRCLE BAR

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CRANE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
TIN CAN RIDGE QUADRANGLE
SHEET NUMBER 69 OF 221

118° 30′ 00″ — 379000mE — 380 — R. 34 E. — 381 — R. 35 E. — 382 — 118° 27′ 30″ — 383 — 384 — 385 — 118° 25′ 00″ — 386 — 387 — 388 — 389000mE — 118° 22′ 30″

43° 30′ 00″ — 4817 — 4816 — 4815 — 4814000mN — 4813 — 43° 27′ 30″ — 4812 — 4811 — T. 24 S. — 4810 — T. 25 S. — 4809 — 4808 — 43° 25′ 00″ — 4807 — 4806 — 4805 — 4804000mN — 43° 22′ 30″

Tin Can Ridge
Tin Can Spring
Alder Creek Meadow
Little Crane Creek
Cow Canyon
Alder Creek
Hunter Ranch Res.
Gorman Creek
Cold Spring
Little Crane Creek
Alder Creek Res.
Crane Creek
Coyote Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

53	54	55
68		70
83	84	85

53 MAHON CREEK
54 COLEMAN MOUNTAIN
55 WARM SPRINGS CREEK
68 CRANE
70 DUNNEAN
83 NEW PRINCETON
84 CIRCLE BAR
85 VENATOR

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TIN CAN RIDGE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 69 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
DUNNEAN QUADRANGLE
SHEET NUMBER 70 OF 221

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″
43°30′00″ 43°27′30″ 43°25′00″ 43°22′30″
R. 35 E. R. 36 E.
T. 24 S. T. 25 S.

Coleman Creek
Coyote Creek
BUCK MOUNTAIN
Carey Reservoir
Dunnean
Malheur River
Coyote Creek
Coleman Creek
Creek
McEwen Spring
Fork
South Swamp
Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

54	55	56
69		71
84	85	86

54 COLEMAN MOUNTAIN
55 WARM SPRINGS CREEK
56 WARM SPRINGS RESERVOIR
69 TIN CAN RIDGE
71 MCEWEN BUTTE
84 CIRCLE BAR
85 VENATOR
86 VENATOR RESERVOIR

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DUNNEAN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 70 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
MCEWEN BUTTE QUADRANGLE
SHEET NUMBER 71 OF 221

118°15′00″ 399000mE R. 36 E. 400 401 402 118°12′30″ 403 404 405 118°10′00″ 406 407 408 118°07′30″ 409000mE

43°30′00″ 4816 4815 4814 4813000mN 43°27′30″ 4812 4811 4810 4809 4808 43°25′00″ 4807 4806 4805 4804 4803000mN 43°22′30″

R. 36 E. 399000mE 400 401 402 118°12′30″ 403 404 405 118°10′00″ 406 407 408 118°07′30″ 409000mE

T. 24 S.
T. 25 S.

MALHEUR COUNTY

BUCK MOUNTAIN

Buck Creek

South Fork Malheur River

12 13 24 25 36 1 12 13 24 25

363 344 363 363 364 199 363 364 190 262 262 333 282 51 57 51 57 51 57 51 58 57 58

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

55	56	55 WARM SPRINGS CREEK 56 WARM SPRINGS RESERVOIR
70		70 DUNNEAN
85	86	85 VENATOR 86 VENATOR RESERVOIR

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MCEWEN BUTTE, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
WAGONTIRE MOUNTAIN WEST QUADRANGLE
SHEET NUMBER 72 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

	57	58	57 ROUND TOP BUTTE 58 HAY LAKE
		73	73 WAGONTIRE MOUNTAIN EAST
	87	88	87 LOCUST BUTTE 88 LITTLE JUNIPER MOUNTAIN

WAGONTIRE MOUNTAIN WEST, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 72 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
WAGONTIRE MOUNTAIN EAST QUADRANGLE
SHEET NUMBER 73 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

57	58	59
72		74
87	88	89

57 ROUND TOP BUTTE
58 HAY LAKE
59 SQUAW BUTTE
72 WAGONTIRE MOUNTAIN WEST
74 ALEC BUTTE
87 LOCUST BUTTE
88 LITTLE JUNIPER MOUNTAIN
89 GOOSE EGG BUTTE

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WAGONTIRE MOUNTAIN EAST, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 73 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
ALEC BUTTE QUADRANGLE
SHEET NUMBER 74 OF 221

119° 45′ 00″ | 119° 42′ 30″ | 119° 40′ 00″ | 119° 37′ 30″
43° 22′ 30″ | 43° 20′ 00″ | 43° 17′ 30″ | 43° 15′ 00″
R. 25 E. | R. 26 E.
T. 25 S. | T. 26 S. | T. 27 S.
277000m E | 278 | 279 | 280 | 281 | 282 | 283 | 284 | 285 | 286 | 287000m E
4802000m N | 4801 | 4800 | 4799 | 4798 | 4797 | 4796 | 4795 | 4794 | 4793 | 4792000m N

Big Stick Creek
Alec Butte
EGLI RIDGE
Bomber Lake
Platter Lake
Wilson Creek
Jack Smart Lake
Little Tank Creek
Tank Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

58	59	60
73		75
88	89	90

58 HAY LAKE
59 SQUAW BUTTE
60 CAPEHART LAKE
73 WAGONTIRE MOUNTAIN EAST
75 LAKE ON THE TRAIL
88 LITTLE JUNIPER MOUNTAIN
89 GOOSE EGG BUTTE
90 WILSON BUTTE

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ALEC BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 74 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
LAKE ON THE TRAIL QUADRANGLE
SHEET NUMBER 75 OF 221

119° 37′ 30″ — 119° 35′ 00″ — 119° 32′ 30″ — 119° 30′ 00″
43° 22′ 30″ — 43° 20′ 00″ — 43° 17′ 30″ — 43° 15′ 00″
R. 26 E. — R. 27 E.
T. 25 S. — T. 26 S. — T. 27 S.

Buzzard Lake
Capehart Lake
Murphy Lake
Lake on the Trail
Big Stick Canyon
Big Stick Creek
Big Stick Well
Table Butte
Black Canyon Creek
Sebree Lake
Trail Lake
Sand Hollow
Fries Well

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

59	60	61
74		76
89	90	91

59 SQUAW BUTTE
60 CAPEHART LAKE
61 MOON RESERVOIR
74 ALEC BUTTE
76 IRON MOUNTAIN FLAT
89 GOOSE EGG BUTTE
90 WILSON BUTTE
91 LUNCH LAKE

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LAKE ON THE TRAIL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 75 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
IRON MOUNTAIN FLAT QUADRANGLE
SHEET NUMBER 76 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

60	61	62	60 CAPEHART LAKE 61 MOON RESERVOIR 62 PALOMINO BUTTES
75		77	75 LAKE ON THE TRAIL 77 STINKING LAKE
90	91	92	90 WILSON BUTTE 91 LUNCH LAKE 92 HUGHET SPRING

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IRON MOUNTAIN FLAT, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
STINKING LAKE QUADRANGLE
SHEET NUMBER 77 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

61	62	63
76		78
91	92	93

61 MOON RESERVOIR
62 PALOMINO BUTTES
63 WEAVER LAKE
76 IRON MOUNTAIN FLAT
78 NORTHWEST HARNEY LAKE
91 LUNCH LAKE
92 HUGHET SPRING
93 SOUTHWEST HARNEY LAKE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
NORTHWEST HARNEY LAKE QUADRANGLE
SHEET NUMBER 78 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

62	63	64
77		79
92	93	94

62 PALOMINO BUTTES
63 WEAVER LAKE
64 DOG MOUNTAIN
77 STINKING LAKE
79 NORTHEAST HARNEY LAKE
92 HUGHET SPRING
93 SOUTHWEST HARNEY LAKE
94 SOUTHEAST HARNEY LAKE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
NORTHEAST HARNEY LAKE QUADRANGLE
SHEET NUMBER 79 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

63	64	65
78		80
93	94	95

63 WEAVER LAKE
64 DOG MOUNTAIN
65 REDESS
78 NORTHWEST HARNEY LAKE
80 THE NARROWS
93 SOUTHWEST HARNEY LAKE
94 SOUTHEAST HARNEY LAKE
95 COYOTE BUTTES

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
THE NARROWS QUADRANGLE
SHEET NUMBER 80 OF 221

119° 00′ 00″ — 118° 57′ 30″ — 118° 55′ 00″ — 118° 52′ 30″
43° 22′ 30″ — 43° 20′ 00″ — 43° 17′ 30″ — 43° 15′ 00″
R. 31 E. — R. 32 E. — R. 30 E. — R. 31 E.
T. 25 S. — T. 26 S. — T. 27 S.

SUNSET
HARNEY VALLEY
VALLEY
MALHEUR LAKE
MALHEUR NATIONAL WILDLIFE REFUGE
BLITZEN VALLEY
MALHEUR NATIONAL WILDLIFE REFUGE
WILDLIFE REFUGE BOUNDARY
The Narrows
MUD LAKE
Silvies R.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

64	65	66	64 DOG MOUNTAIN 65 REDESS 66 LAWEN
79		81	79 NORTHEAST HARNEY LAKE 81 MALHEUR LAKE WEST
94	95	96	94 SOUTHEAST HARNEY LAKE 95 COYOTE BUTTES 96 JACKASS BUTTE NE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
MALHEUR LAKE WEST QUADRANGLE
SHEET NUMBER 81 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

65	66	67
80		82
95	96	97

65 REDESS
66 LAWEN
67 WARM SPRINGS BUTTE
80 THE NARROWS
82 MALHEUR LAKE EAST
95 COYOTE BUTTES
96 JACKASS BUTTE NE
97 BARTON LAKE

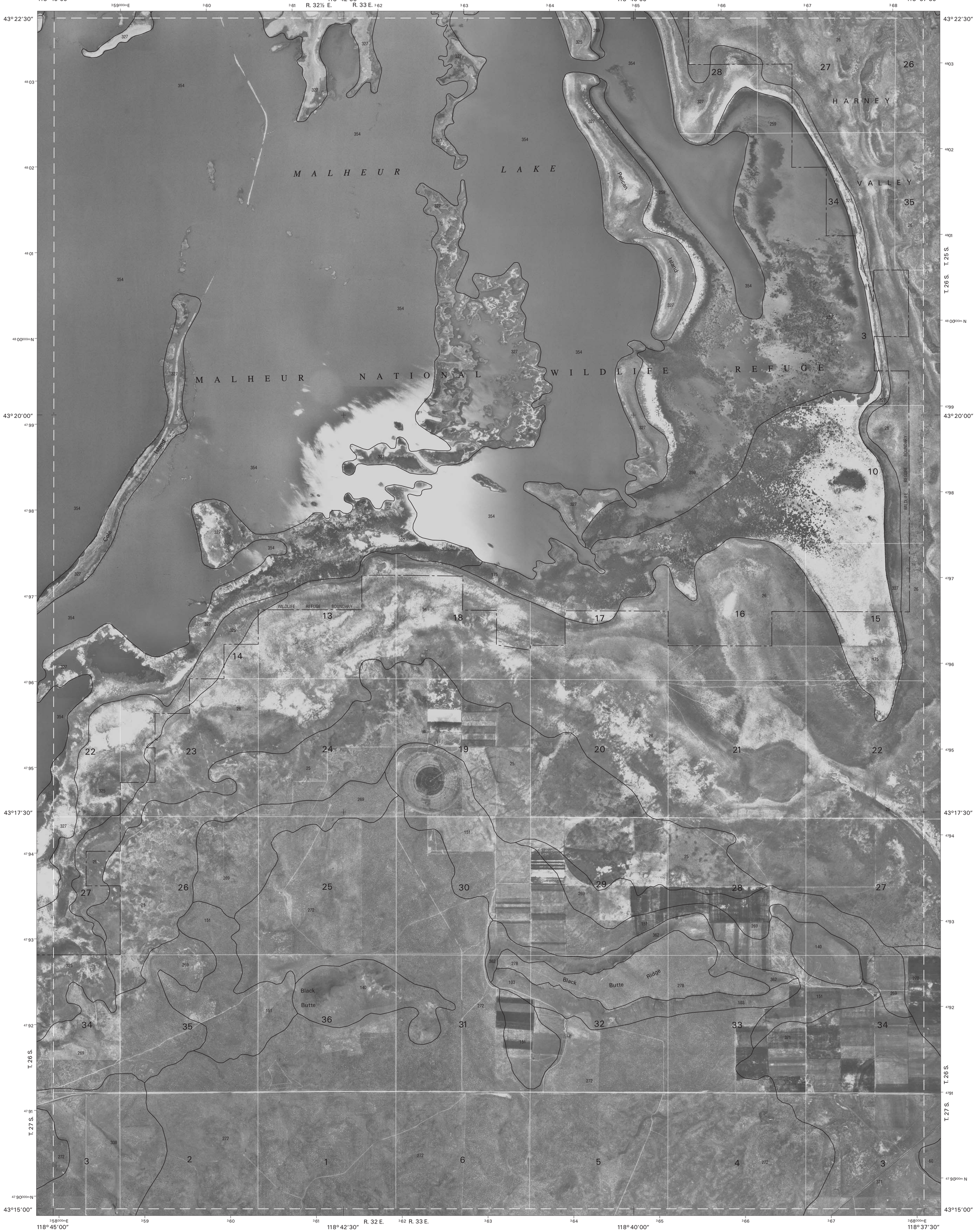
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HARNEY COUNTY AREA, OREGON
MALHEUR LAKE EAST QUADRANGLE
SHEET NUMBER 82 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

66	67	68
81		83
96	97	98

66 LAWEN
67 WARM SPRINGS BUTTE
68 CRANE
81 MALHEUR LAKE WEST
83 NEW PRINCETON
96 JACKASS BUTTE NE
97 BARTON LAKE
98 ADOBE FLAT

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MALHEUR LAKE EAST, OREGON

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HARNEY COUNTY AREA, OREGON
NEW PRINCETON QUADRANGLE
SHEET NUMBER 83 OF 221

118°37′30″ 118°35′00″ 118°32′30″ 118°30′00″
43°22′30″ 43°20′00″ 43°17′30″ 43°15′00″
R. 33 E. R. 34 E.
T. 25 S. T. 26 S. T. 27 S.
369000mE 370 371 372 373 374 375 376 377 378000mE
4803 4802 4801 48000mN 4799 4798 4797 4796 4795 4794 4793 4792 4791 47990mN

HARNEY VALLEY
BEAVER TABLES
Windy Point
New Princeton
Long Hollow
Malheur Gap
Hatt Butte
78

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

67	68	69
82		84
97	98	99

67 WARM SPRINGS BUTTE
68 CRANE
69 TIN CAN RIDGE
82 MALHEUR LAKE EAST
84 CIRCLE BAR
97 BARTON LAKE
98 ADOBE FLAT
99 SAND GAP

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NEW PRINCETON, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
CIRCLE BAR QUADRANGLE
SHEET NUMBER 84 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

68	69	70
83		85
98	99	100

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68 CRANE
69 TIN CAN RIDGE
70 DUNNEAN
83 NEW PRINCETON
85 VENATOR
98 ADOBE FLAT
99 SAND GAP
100 SOUTH FORK RESERVOIR

CIRCLE BAR, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 84 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
VENATOR QUADRANGLE
SHEET NUMBER 85 OF 221

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″
43°22′30″ 43°20′00″ 43°17′30″ 43°15′00″
R. 35 E. R. 36 E.
T. 25 S. T. 26 S. T. 27 S.
Venator
Little Crane Creek
Crane Creek
South Fork Malheur River
Malheur River
Swamp Creek
Pole Creek
China Hill Reservoir
Deadman Creek
South Fork Malheur River

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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69	70	71
84		86
99	100	101

69 TIN CAN RIDGE
70 DUNNEAN
71 MCEWEN BUTTE
84 CIRCLE BAR
86 VENATOR RESERVOIR
99 SAND GAP
100 SOUTH FORK RESERVOIR
101 DUCK CREEK BUTTE

VENATOR, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 85 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
VENATOR RESERVOIR QUADRANGLE
SHEET NUMBER 86 OF 221

118°15′00″ 399000mE R. 36 E. 400 401 118°12′30″ 402 403 404 405 118°10′00″ 406 407 408 118°07′30″ 409000mE

43°22′30″ 4803 4802 4801 T. 25 S. 48000mN T. 26 S. 4799 4798 4797 4796 4795 4794 43°17′30″ 4793 4792 T. 26 S. T. 27 S. 47900mN 43°15′00″

43°22′30″ 4802 4801 4800 47 999000m N 4798 4797 4796 4795 4794 43°17′30″ 4793 4792 4791 4790 47 899000m N 43°15′00″

118°15′00″ 399000mE R. 36 E. 400 401 118°12′30″ 402 403 404 405 118°10′00″ 406 407 408 118°07′30″ 409000mE

MALHEUR COUNTY

25 36 1 2 11 12 13 14 23 24 25 26 35 36

Swamp Creek
Pole Creek
Deadman Creek
Venator Reservoir

57 58 103 362 54

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

70	71	
85		
100	101	

70 DUNNEAN
71 MCEWEN BUTTE
85 VENATOR
100 SOUTH FORK RESERVOIR
101 DUCK CREEK BUTTE

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VENATOR RESERVOIR, OREGON

7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
LOCUST BUTTE QUADRANGLE
SHEET NUMBER 87 OF 221

120° 00′ 00″ | 119° 57′ 30″ | 119° 55′ 00″ | 119° 52′ 30″

R. 24 E.

T. 27 S.
T. 28 S.

LAKE COUNTY

Wagontire

Toms Bedground

Toms Waterhole

DRY VALLEY ROAD

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

72 WAGONTIRE MOUNTAIN WEST
73 WAGONTIRE MOUNTAIN EAST
88 LITTLE JUNIPER MOUNTAIN
102 VENATOR CANYON
103 COX CANYON

LOCUST BUTTE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
LITTLE JUNIPER MOUNTAIN QUADRANGLE
SHEET NUMBER 88 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

72	73	74
87		89
102	103	104

72 WAGONTIRE MOUNTAIN WEST
73 WAGONTIRE MOUNTAIN EAST
74 ALEC BUTTE
87 LOCUST BUTTE
89 GOOSE EGG BUTTE
102 VENATOR CANYON
103 COX CANYON
104 DRY VALLEY RIM

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LITTLE JUNIPER MOUNTAIN, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
GOOSE EGG BUTTE QUADRANGLE
SHEET NUMBER 89 OF 221

119° 45′ 00″ — 119° 42′ 30″ — 119° 40′ 00″ — 119° 37′ 30″
43° 15′ 00″ — 43° 12′ 30″ — 43° 10′ 00″ — 43° 07′ 30″
R. 25 E. — R. 26 E.
T. 27 S. — T. 28 S.

Little Tank Creek
Stormy Draw
Wilson Creek
Goose Egg Butte
Happy Camp
Lower Goose Egg Lake
Upper Goose Egg Lake
MOUNTAIN HORSEHEAD
DRY VALLEY
Wilson Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

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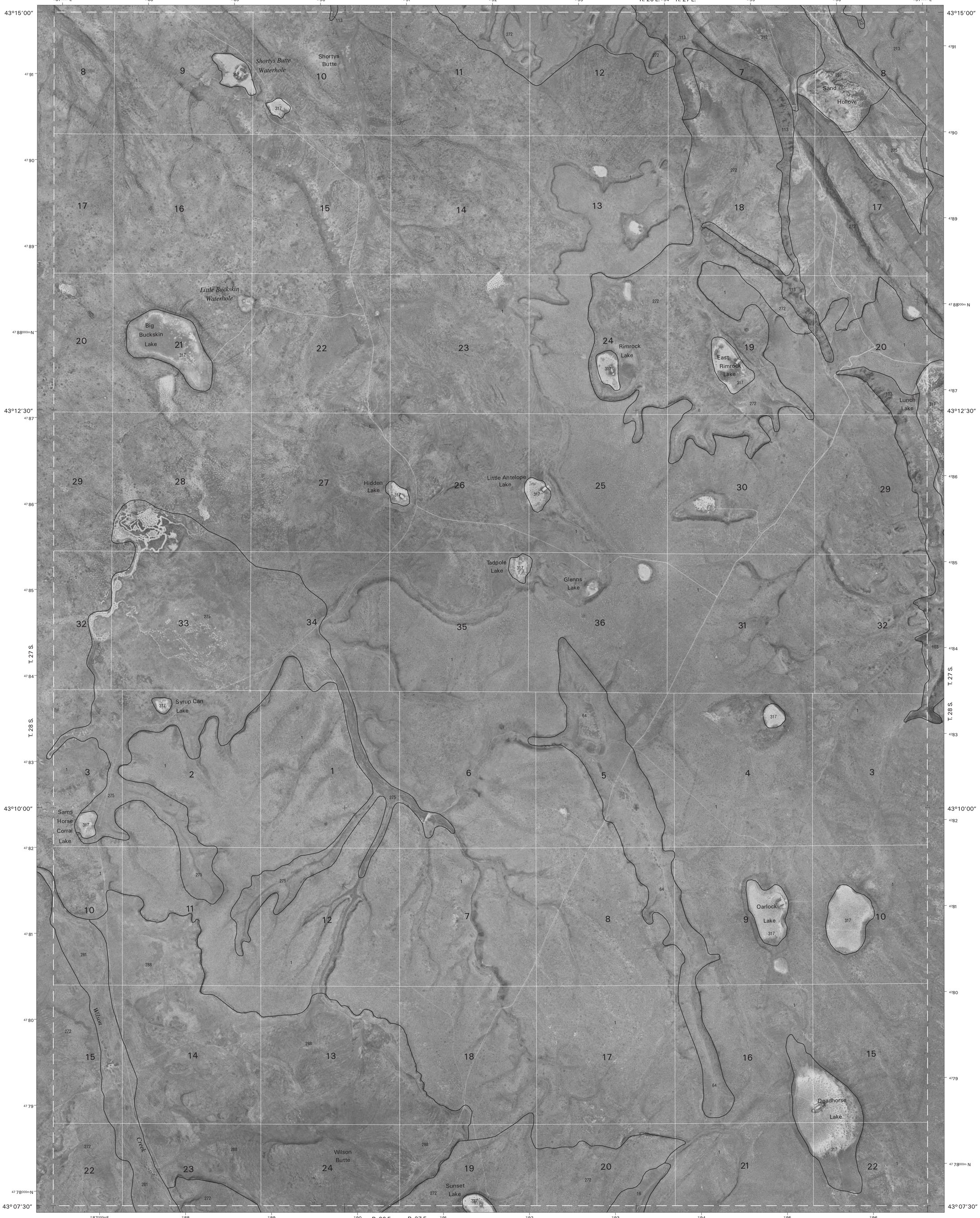
73	74	75	73 WAGONTIRE MOUNTAIN EAST 74 ALEC BUTTE 75 LAKE ON THE TRAIL
88		90	88 LITTLE JUNIPER MOUNTAIN 90 WILSON BUTTE
103	104	105	103 COX CANYON 104 DRY VALLEY RIM 105 RAWHIDE CANYON

GOOSE EGG BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 89 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
WILSON BUTTE QUADRANGLE
SHEET NUMBER 90 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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74	75	76
89		91
104	105	106

74 ALEC BUTTE
75 LAKE ON THE TRAIL
76 IRON MOUNTAIN FLAT
89 GOOSE EGG BUTTE
91 LUNCH LAKE
104 DRY VALLEY RIM
105 RAWHIDE CANYON
106 FLYBEE LAKE

WILSON BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 90 OF 221

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HARNEY COUNTY AREA, OREGON
LUNCH LAKE QUADRANGLE
SHEET NUMBER 91 OF 221

119° 30′ 00″ — 119° 27′ 30″ — 119° 25′ 00″ — 119° 22′ 30″
43° 15′ 00″ — 43° 12′ 30″ — 43° 10′ 00″ — 43° 07′ 30″
R. 27 E. — R. 28 E.
T. 27 S. — T. 28 S.

Sand Hollow
Creek
Angle Canyon
Lunch Lake
Buzzard Creek
Buzzard Canyon
Chicken Feed Lake
SMOKY HOLLOW
Deep Canyon
Buckaroo Flat
Buzzard Lake Canyon

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

75	76	77	75 LAKE ON THE TRAIL 76 IRON MOUNTAIN FLAT 77 STINKING LAKE
90		92	90 WILSON BUTTE 92 HUGHET SPRING
105	106	107	105 RAWHIDE CANYON 106 FLYBEE LAKE 107 MEADOW LAKE

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DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
HUGHET SPRING QUADRANGLE
SHEET NUMBER 92 OF 221

119°22′30″ 119°20′00″ 119°17′30″ 119°15′00″
43°15′00″ 43°12′30″ 43°10′00″ 43°07′30″
R. 28 E. R. 29 E.
T. 27 S. T. 28 S.

Hughet Spring
Warm Springs Valley
Chicken Feed Lake
Yellow Spot Well (Dry)
Teddy Spring Reservoir
Stud Horse Reservoir
Buckaroo Flat
Buzzard Canyon
Round Butte
Round Butte Lake
Buzzard Lake

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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76	77	78	76 IRON MOUNTAIN FLAT 77 STINKING LAKE 78 NORTHWEST HARNEY LAKE
91		93	91 LUNCH LAKE 93 SOUTHWEST HARNEY LAKE
106	107	108	106 FLYBEE LAKE 107 MEADOW LAKE 108 WEED LAKE BUTTE

HUGHET SPRING, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 92 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
SOUTHWEST HARNEY LAKE QUADRANGLE
SHEET NUMBER 93 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

77	78	79
92		94
107	108	109

77 STINKING LAKE
78 NORTHWEST HARNEY LAKE
79 NORTHEAST HARNEY LAKE
92 HUGHET SPRING
94 SOUTHEAST HARNEY LAKE
107 MEADOW LAKE
108 WEED LAKE BUTTE
109 TWIN BUTTES

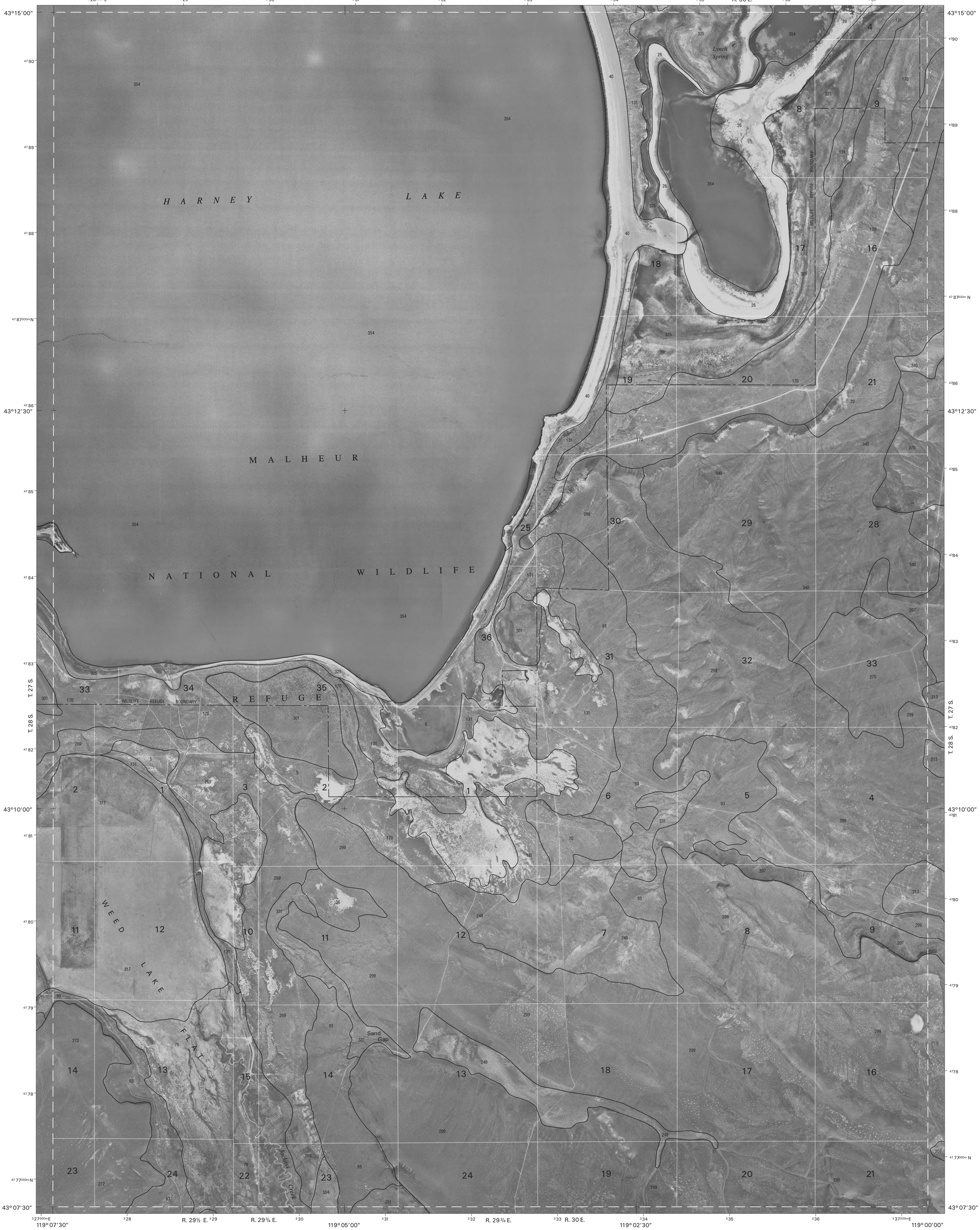
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SOUTHWEST HARNEY LAKE, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
SOUTHEAST HARNEY LAKE QUADRANGLE
SHEET NUMBER 94 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

78	79	80
93		95
108	109	110

78 NORTHWEST HARNEY LAKE
79 NORTHEAST HARNEY LAKE
80 THE NARROWS
93 SOUTHWEST HARNEY LAKE
95 COYOTE BUTTES
108 WEED LAKE BUTTE
109 TWIN BUTTES
110 JACKASS BUTTE

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SOUTHEAST HARNEY LAKE, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
COYOTE BUTTES QUADRANGLE
SHEET NUMBER 95 OF 221

119°00′00″ 118°57′30″ 118°55′00″ 118°52′30″
43°15′00″ 43°12′30″ 43°10′00″ 43°07′30″
R. 30 E. R. 31 E.
T. 27 S. T. 28 S.
4787000m N

M A L H E U R V A L L E Y
B L I T Z E N
N A T I O N A L W I L D L I F E R E F U G E
Coyote Buttes
Simmons
Blitzen River
Donner und Blitzen River
Saddle Butte
Rattlesnake Butte
ROAD
PATROL
CENTER
REFUGE BOUNDARY
ROCKFORD LANE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

79	80	81
94		96
109	110	111

79 NORTHEAST HARNEY LAKE
80 THE NARROWS
81 MALHEUR LAKE WEST
94 SOUTHEAST HARNEY LAKE
96 JACKASS BUTTE NE
109 TWIN BUTTES
110 JACKASS BUTTE
111 DIAMOND SWAMP

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COYOTE BUTTES, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 95 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
JACKASS BUTTE NE QUADRANGLE
SHEET NUMBER 96 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

80	81	82
95		97
110	111	112

80 THE NARROWS
81 MALHEUR LAKE WEST
82 MALHEUR LAKE EAST
95 COYOTE BUTTES
97 BARTON LAKE
110 JACKASS BUTTE
111 DIAMOND SWAMP
112 DIAMOND

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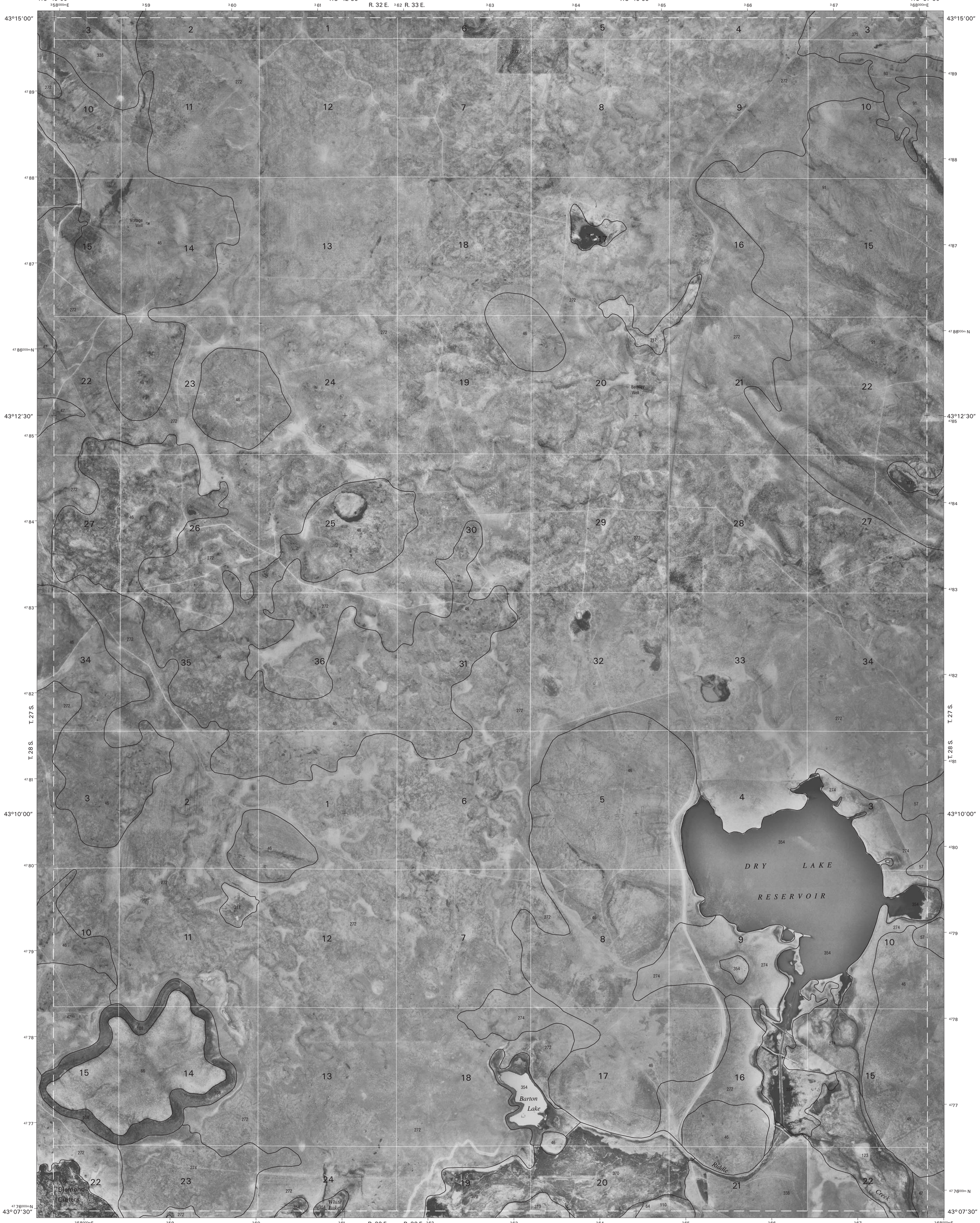
JACKASS BUTTE NE, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
BARTON LAKE QUADRANGLE
SHEET NUMBER 97 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

81	82	83	81 MALHEUR LAKE WEST 82 MALHEUR LAKE EAST 83 NEW PRINCETON
96		98	96 JACKASS BUTTE NE 98 ADOBE FLAT
111	112	113	111 DIAMOND SWAMP 112 DIAMOND 113 HAPPY VALLEY

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HARNEY COUNTY AREA, OREGON
ADOBE FLAT QUADRANGLE
SHEET NUMBER 98 OF 221

118°37′30″ 118°35′00″ 118°32′30″ 118°30′00″
43°15′00″ 43°12′30″ 43°10′00″ 43°07′30″
R. 33 E. R. 34 E.
T. 27 S. T. 28 S.

Hat Butte
Malheur Gap
Kegler Butte
Davison Butte
Little Riddle Mountain
Stanfield Creek
VIRGINIA VALLEY
ADOBE FLAT
ANDERSON VALLEY

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

82	83	84	82 MALHEUR LAKE EAST 83 NEW PRINCETON 84 CIRCLE BAR
97		99	97 BARTON LAKE 99 SAND GAP
112	113	114	112 DIAMOND 113 HAPPY VALLEY 114 ANDERSON MOUNTAIN

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
SAND GAP QUADRANGLE
SHEET NUMBER 99 OF 221

118°30′00″ 118°27′30″ 118°25′00″ 118°22′30″
43°15′00″ 43°12′30″ 43°10′00″ 43°07′30″
R. 34 E. R. 35 E.
T. 27 S. T. 28 S.
378000mE 379 380 381 382 383 384 385 386 387 388000mE
4789 4788 4787 4786000mN 4785 4784 4783 4782 4781 4780 4779 4778 4777 4776000mN

VIRGINIA VALLEY
ANDERSON VALLEY
Round Mountain
Virginia Valley School
Sand Gap
South Fork Malheur River
Hole in the Ground
Jenkins Reservoir
Mahon Reservoir
Standcliff
Camp Creek
Butler Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

83	84	85
98		100
113	114	115

83 NEW PRINCETON
84 CIRCLE BAR
85 VENATOR
98 ADOBE FLAT
100 SOUTH FORK RESERVOIR
113 HAPPY VALLEY
114 ANDERSON MOUNTAIN
115 LAMBING CANYON

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SAND GAP, OREGON
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HARNEY COUNTY AREA, OREGON
SOUTH FORK RESERVOIR QUADRANGLE
SHEET NUMBER 100 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

84	85	86
99		101
114	115	116

84 CIRCLE BAR
85 VENATOR
86 VENATOR RESERVOIR
99 SAND GAP
101 DUCK CREEK BUTTE
114 ANDERSON MOUNTAIN
115 LAMBING CANYON
116 FOLLY FARM

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SOUTH FORK RESERVOIR, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
DUCK CREEK BUTTE QUADRANGLE
SHEET NUMBER 101 OF 221

118°15′00″ 399000mE R. 36 E. 400 401 118°12′30″ 402 403 404 405 118°10′00″ 406 407 408 118°07′30″

43°15′00″ 4789 4788 4787 4786000m N 4785 43°12′30″ 4784 4783 4782 4781 4780 43°10′00″ 4779 4778 4777 4776000m N 43°07′30″

MALHEUR COUNTY

HARNEY COUNTY

T. 27 S.
T. 28 S.

2 1 11 12 14 13 23 24 26 25 35 36 2 1 11 12 13 24

Post Mountain

Indian Creek

Big Gulch

58 59 362 57

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

85	86		85 VENATOR 86 VENATOR RESERVOIR
100			100 SOUTH FORK RESERVOIR
115	116		115 LAMBING CANYON 116 FOLLY FARM

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DUCK CREEK BUTTE, OREGON
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HARNEY COUNTY AREA, OREGON
VENATOR CANYON QUADRANGLE
SHEET NUMBER 102 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

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	87	88
	103	
	117	118

87 LOCUST BUTTE
88 LITTLE JUNIPER MOUNTAIN
103 COX CANYON
117 JUNIPER MOUNTAIN
118 TURPIN KNOLL

VENATOR CANYON, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 102 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
COX CANYON QUADRANGLE
SHEET NUMBER 103 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

87	88	89	87 LOCUST BUTTE 88 LITTLE JUNIPER MOUNTAIN 89 GOOSE EGG BUTTE
102		104	102 VENATOR CANYON 104 DRY VALLEY RIM
117	118	119	117 JUNIPER MOUNTAIN 118 TURPIN KNOLL 119 RED BANK LAKES

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COX CANYON, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
DRY VALLEY RIM QUADRANGLE
SHEET NUMBER 104 OF 221

119° 45′ 00″ | 119° 42′ 30″ | 119° 40′ 00″ | 119° 37′ 30″
43° 07′ 30″ | 43° 05′ 00″ | 43° 02′ 30″ | 43° 00′ 00″
R. 25 E. | R. 26 E.
T. 28 S. | T. 29 S. | T. 30 S.
DRY VALLEY | DRY VALLEY RIM | Dry Valley Rim Reservoir | Fork Reservoir | Indian Creek | Rawhide Canyon | Arthur Lake | Fox Well

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

INDEX TO ADJOINING 7.5 MAPS

88	89	90
103		105
118	119	120

88 LITTLE JUNIPER MOUNTAIN
89 GOOSE EGG BUTTE
90 WILSON BUTTE
103 COX CANYON
105 RAWHIDE CANYON
118 TURPIN KNOLL
119 RED BANK LAKES
120 ROCK CAMP DRAW

DRY VALLEY RIM, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 104 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
RAWHIDE CANYON QUADRANGLE
SHEET NUMBER 105 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

89	90	91	89 GOOSE EGG BUTTE 90 WILSON BUTTE 91 LUNCH LAKE
104		106	104 DRY VALLEY RIM 106 FLYBEE LAKE
119	120	121	119 RED BANK LAKES 120 ROCK CAMP DRAW 121 BALLS LAKE

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RAWHIDE CANYON, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 105 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
FLYBEE LAKE QUADRANGLE
SHEET NUMBER 106 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

90	91	92	90 WILSON BUTTE 91 LUNCH LAKE 92 HUGHET SPRING
105		107	105 RAWHIDE CANYON 107 MEADOW LAKE
120	121	122	120 ROCK CAMP DRAW 121 BALLS LAKE 122 CLOVER SWALE

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FLYBEE LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 106 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
MEADOW LAKE QUADRANGLE
SHEET NUMBER 107 OF 221

119° 22′ 30″ — 307 000mE — 308 — 309 — R. 28 E. — 119° 20′ 00″ — 310 — R. 29 E. — 311 — 312 — 313 — 119° 17′ 30″ — 314 — 315 — 316 — 119° 15′ 00″ — 317 000mE

43° 07′ 30″ — 4777 — 4776 — 4775 — 4774 000mN — T. 28 S. — T. 29 S. — 4773 — 43° 05′ 00″ — 4772 — 4771 — 4770 — 4769 — 4768 — 43° 02′ 30″ — 4767 — 4766 — 4765 — 4764 000mN — T. 29 S. — T. 30 S. — 43° 00′ 00″ — 4763 000mN

Buzzard Lake
Buzzard
Canyon
Deep
Canyon
Buzzard Spring
Creek
Moon Lake
Canyon
Deep
Green Lake
Deep Lake
Twin Lakes
Junction Lake
Meadow Lake
Robinson Valley
Deadmans Bedground
Foster Flat
Foster Lake

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

91	92	93
106		108
121	122	123

91 LUNCH LAKE
92 HUGHET SPRING
93 SOUTHWEST HARNEY LAKE
106 FLYBEE LAKE
108 WEED LAKE BUTTE
121 BALLS LAKE
122 CLOVER SWALE
123 KEG SPRS VALLEY WEST

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MEADOW LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 107 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
WEED LAKE BUTTE QUADRANGLE
SHEET NUMBER 108 OF 221

119°15′00″ 317 000mE 318 R. 29 E. 319 R. 29½ E. 320 119°12′30″ 321 322 323 119°10′00″ 324 325 326 119°07′30″ 327 000mE

43°07′30″ 4776 4775 4774 47 73 000m N 4772 4771 4770 4769 4768 4767 4766 4765 4764 43°00′00″ 47 63 000m N 43°02′30″ 43°05′00″

T. 28 S. T. 29 S. T. 30 S.

Dry Lake
West Weed Lake Butte Waterhole
Weed Lake Butte
Washpan Lake Waterhole
East Weed Lake Butte Waterhole
Haines Lake
Prentis Lake
Buzzard Draw
Creek
Campbell Reservoir
Leary Lake
Marter Lake
Jackass Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

92	93	94	92 HUGHET SPRING 93 SOUTHWEST HARNEY LAKE 94 SOUTHEAST HARNEY LAKE
107		109	107 MEADOW LAKE 109 TWIN BUTTES 122 CLOVER SWALE 123 KEG SPRS VALLEY WEST 124 KEG SPRS VALLEY EAST
122	123	124	

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WEED LAKE BUTTE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 108 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
TWIN BUTTES QUADRANGLE
SHEET NUMBER 109 OF 221

119° 07′ 30″ — 119° 05′ 00″ — 119° 02′ 30″ — 119° 00′ 00″
43° 07′ 30″ — 43° 05′ 00″ — 43° 02′ 30″ — 43° 00′ 00″
R. 29½ E. — R. 29¾ E. — R. 30 E.
T. 28 S. — T. 29 S. — T. 30 S.

Weed Lake Flat
Jackass Creek
Rocky Hole Reservoir
On Top Waterhole
Griffen Waterhole
On the Rim Waterhole
Second Lake Waterhole
Twin Buttes
Black Rim
Jackass Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

93	94	95	93 SOUTHWEST HARNEY LAKE 94 SOUTHEAST HARNEY LAKE 95 COYOTE BUTTES
108		110	108 WEED LAKE BUTTE 110 JACKASS BUTTE
123	124	125	123 KEG SPRS VALLEY WEST 124 KEG SPRS VALLEY EAST 125 IRISH LAKE

TWIN BUTTES, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 109 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
JACKASS BUTTE QUADRANGLE
SHEET NUMBER 110 OF 221

119° 00′ 00″ — 118° 57′ 30″ — R. 30 E. — R. 31 E. — 118° 55′ 00″ — 118° 52′ 30″
43° 07′ 30″ — 43° 05′ 00″ — 43° 02′ 30″ — T. 28 S. — T. 29 S. — T. 30 S. — 43° 00′ 00″

MALHEUR NATIONAL WILDLIFE REFUGE
BOUNDARY
BLITZEN VALLEY
WILDLIFE REFUGE BOUNDARY
Buena Vista Lake
JACKASS MOUNTAIN
Jackass Butte
BLACK RIM

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

94	95	96	94 SOUTHEAST HARNEY LAKE 95 COYOTE BUTTES 96 JACKASS BUTTE NE
109		111	109 TWIN BUTTES 111 DIAMOND SWAMP
124	125	126	124 KEG SPRS VALLEY EAST 125 IRISH LAKE 126 KRUMBO RESERVOIR

JACKASS BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 110 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
DIAMOND SWAMP QUADRANGLE
SHEET NUMBER 111 OF 221

DIAMOND SWAMP, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 111 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

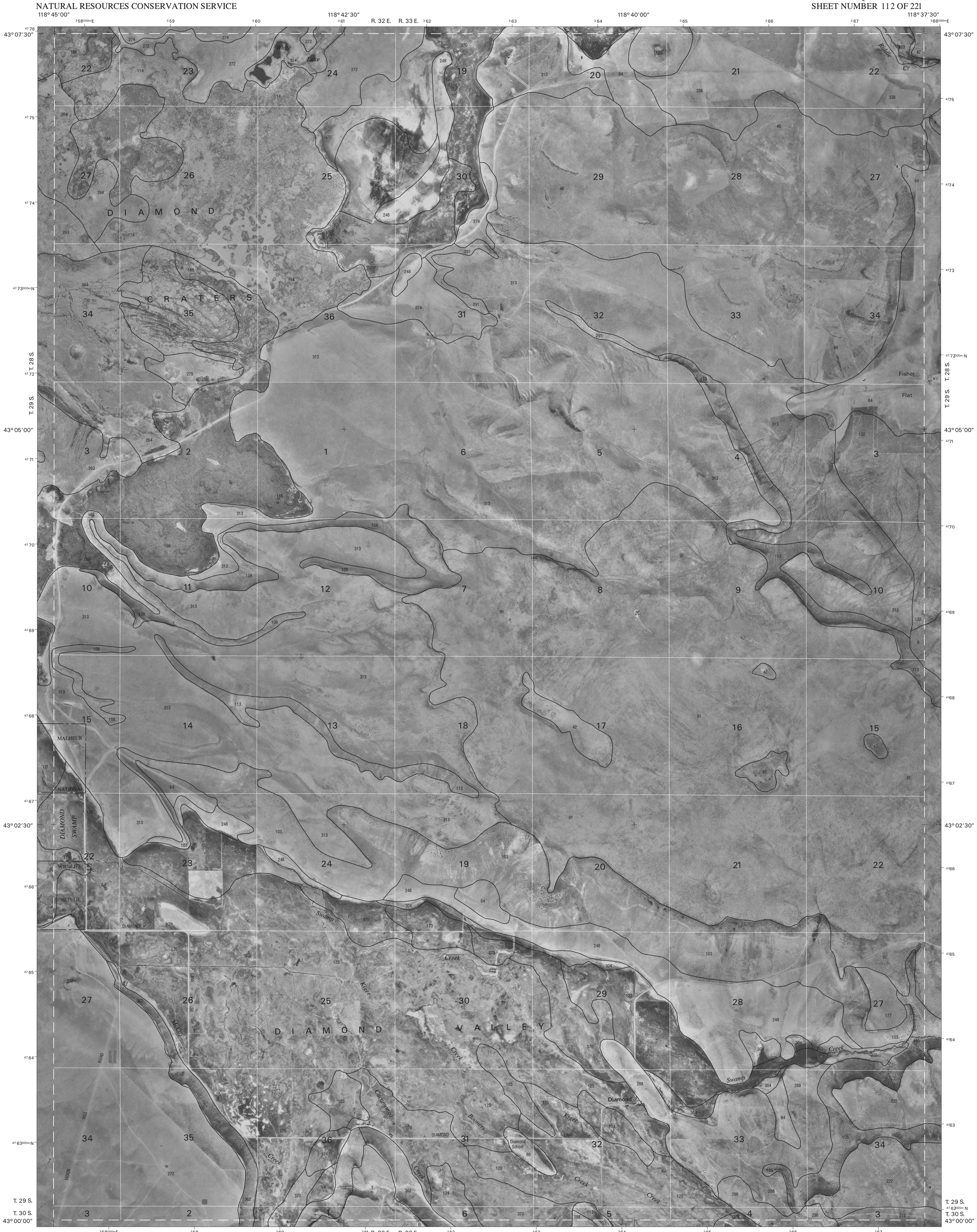
INDEX TO ADJOINING 7.5 MAPS

95	96	97
110		112
125	126	127

95 COYOTE BUTTES
96 JACKASS BUTTE NE
97 BARTON LAKE
110 JACKASS BUTTE
112 DIAMOND
125 IRISH LAKE
126 KRUMBO RESERVOIR
127 KRUMBO RIDGE

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
DIAMOND QUADRANGLE
SHEET NUMBER 112 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

96	97	98
111		113
126	127	128

96 JACKASS BUTTE NE
97 BARTON LAKE
98 ADOBE FLAT
111 DIAMOND SWAMP
113 HAPPY VALLEY
126 KRUMBO RESERVOIR
127 KRUMBO RIDGE
128 POISON SPRINGS

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DIAMOND, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 112 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
HAPPY VALLEY QUADRANGLE
SHEET NUMBER 113 OF 221

118° 37′ 30″ — 118° 35′ 00″ — 118° 32′ 30″ — 118° 30′ 00″
43° 07′ 30″ — 43° 05′ 00″ — 43° 02′ 30″ — 43° 00′ 00″
R. 33 E. — R. 34 E.
T. 28 S. — T. 29 S. — T. 30 S.
368000m E — 369 — 370 — 371 — 372 — 373 — 374 — 375 — 376 — 377 — 378000m E
4772000m N — 4771 — 4770 — 4769 — 4768 — 4767 — 4766 — 4765 — 4764 — 4763 — 4762000m N

HAPPY VALLEY

Riddle Mountain
Little Riddle Mountain
Fisher Flat
Riddle Creek
Smyth Creek
Smyth Res
Rock Creek
Paul Creek
Dry Creek
Ant Hill Swamp
West Big Hill
The Lambing Ground Creek
Hoop Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

INDEX TO ADJOINING 7.5 MAPS

97	98	99
112		114
127	128	129

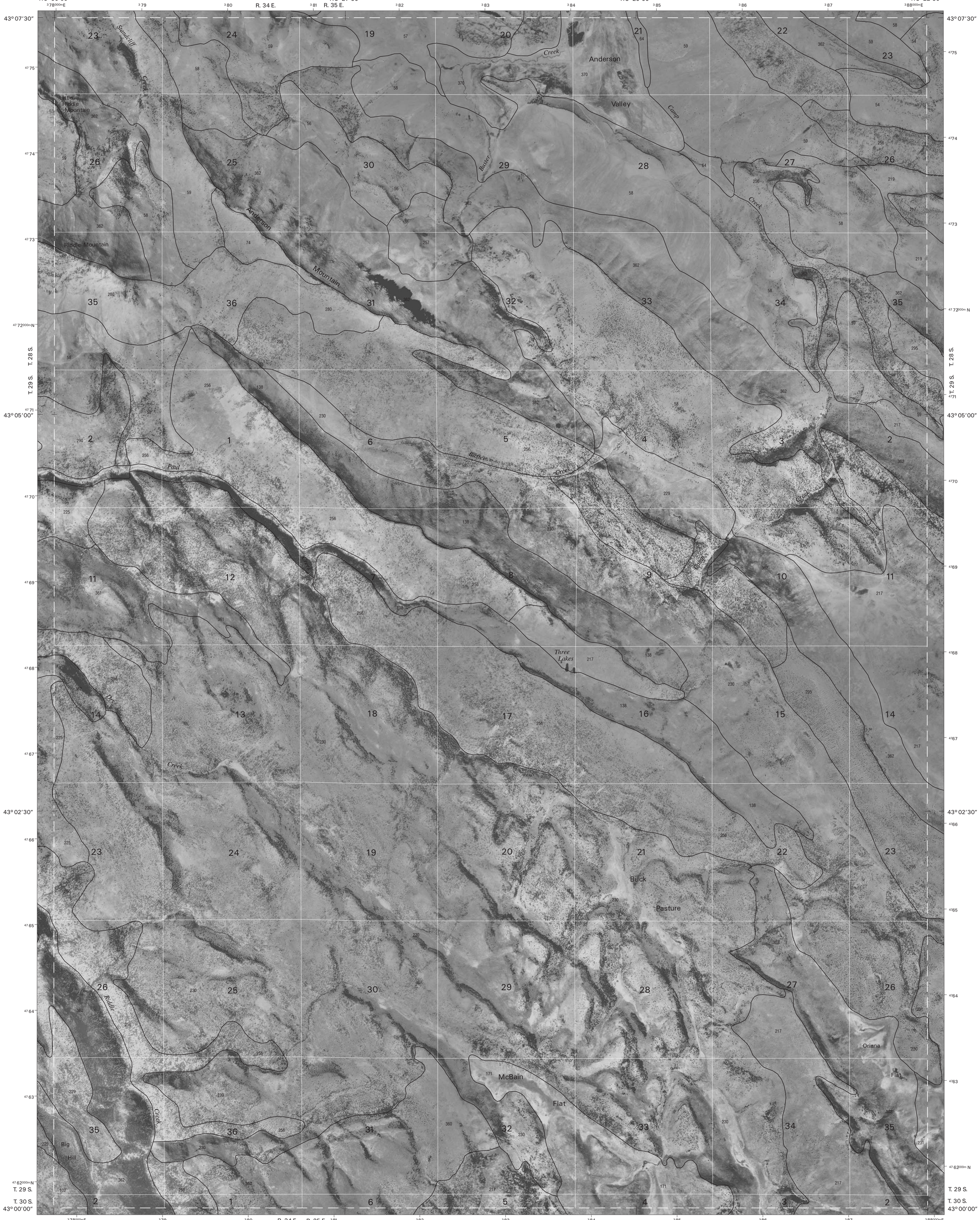
97 BARTON LAKE
98 ADOBE FLAT
99 SAND GAP
112 DIAMOND
114 ANDERSON MOUNTAIN
127 KRUMBO RIDGE
128 POISON SPRINGS
129 COMEGYS LAKE

HAPPY VALLEY, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 113 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
ANDERSON MOUNTAIN QUADRANGLE
SHEET NUMBER 114 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

98	99	100	98 ADOBE FLAT 99 SAND GAP 100 SOUTH FORK RESERVOIR
113		115	113 HAPPY VALLEY 115 LAMBING CANYON
128	129	130	128 POISON SPRINGS 129 COMEGYS LAKE 130 JUNIPER LAKE

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ANDERSON MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 114 OF 221

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
LAMBING CANYON QUADRANGLE
SHEET NUMBER 115 OF 221

118°22′30″ 388000mE 389 390 R. 35 E. R. 36 E. 391 118°20′00″ 392 393 394 118°17′30″ 395 396 397 398000mE 118°15′00″

43°07′30″ 4775 4774 4773 47 72000m N 4771 43°05′00″ 4770 4769 4768 4767 43°02′30″ 4766 4765 4764 4763 47 62000m N 43°00′00″

T. 28 S. T. 29 S. T. 29 S. T. 30 S.

Pollock Draw
Louies Draw
Lambing Canyon
Summit Springs
Lambing Canyon
Quail Creek
Neals Lake
Marys Lake
BURNT FLAT
Oriana Flat
Quail Creek
Canyon Road
Five Cent Lake
Ten Cent Lake

78

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

99	100	101
114		116
129	130	131

99 SAND GAP
100 SOUTH FORK RESERVOIR
101 DUCK CREEK BUTTE
114 ANDERSON MOUNTAIN
116 FOLLY FARM
129 COMEGYS LAKE
130 JUNIPER LAKE
131 RYEGRASS BUTTE

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LAMBING CANYON, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 115 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
FOLLY FARM QUADRANGLE
SHEET NUMBER 116 OF 221

118°15′00″ 118°12′30″ 118°10′00″ 118°07′30″

43°07′30″ 43°05′00″ 43°02′30″ 43°00′00″

399000mE R. 36 E. 400 401 402 403 404 405 406 407 408000mE

4775 4774 4773 4772000mN 4771 4770 4769 4768 4767 4766 4765 4764 4763 4762000mN

MALHEUR COUNTY

T. 28 S.
T. 29 S.
T. 30 S.

24 362 58 59 58 25 58 78 362 36 58 54 58 1 104 55 Lambing Canyon 12 281 290 64 295 55 103 13 64 290 354 FOLLY FARM FLAT Quail Creek 24 64 42 64 96 290 25 269 96 269 36 1

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

100	101		100 SOUTH FORK RESERVOIR 101 DUCK CREEK BUTTE
115			115 LAMBING CANYON
130	131		130 JUNIPER LAKE 131 RYEGRASS BUTTE

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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

FOLLY FARM, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 116 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
JUNIPER MOUNTAIN QUADRANGLE
SHEET NUMBER 117 OF 221

120°00′00″ 119°57′30″ 119°55′00″ 119°52′30″
43°00′00″ 42°57′30″ 42°55′00″ 42°52′30″
R. 24 E.
T. 30 S. T. 31 S.
LAKE COUNTY
Rehart Canyon
Mudhole Waterhole
Deep Lake
Rim
Rehart
Juniper Mountain
Radio Reservoir
Sagehen Lake
Badger Draw

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

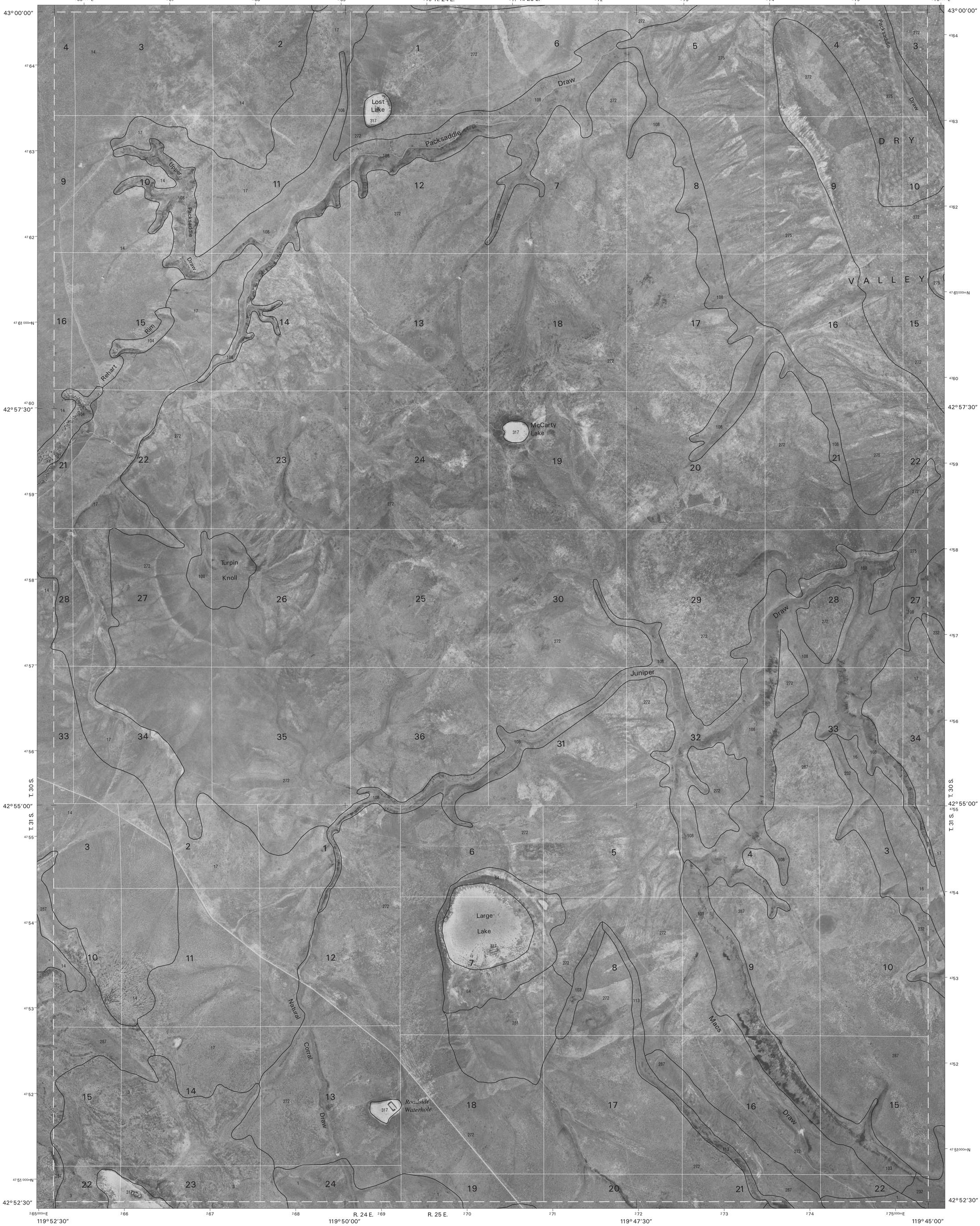
102 VENATOR CANYON
103 COX CANYON
118 TURPIN KNOLL
132 SAGEBRUSH KNOLL
133 CORN LAKE

JUNIPER MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 117 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
TURPIN KNOLL QUADRANGLE
SHEET NUMBER 118 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

102	103	104
117		119
132	133	134

102 VENATOR CANYON
103 COX CANYON
104 DRY VALLEY RIM
117 JUNIPER MOUNTAIN
119 RED BANK LAKES
132 SAGEBRUSH KNOLL
133 CORN LAKE
134 CORPORATION RIM

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TURPIN KNOLL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 118 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
RED BANK LAKES QUADRANGLE
SHEET NUMBER 119 OF 221

119° 45′ 00″ — 119° 42′ 30″ — 119° 40′ 00″ — 119° 37′ 30″
43° 00′ 00″ — 42° 57′ 30″ — 42° 55′ 00″ — 42° 52′ 30″
R. 25 E. R. 26 E.
T. 30 S. T. 31 S.

D R Y V A L L E Y
D R Y V A L L E Y R I M
O L D J I M S O P E N
R a w h i d e C a n y o n
V A L L E Y
Hole in the Ground Lake
Hole in the Ground
Juniper Creek
L Y N C H G U L C H
K I T C A N Y O N
R E D B A N K
L A K E S
Bacon Camp Draw
Brushy Lake

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

103	104	105
118		120
133	134	135

103 COX CANYON
104 DRY VALLEY RIM
105 RAWHIDE CANYON
118 TURPIN KNOLL
120 ROCK CAMP DRAW
133 CORN LAKE
134 CORPORATION RIM
135 STEAMBOAT POINT

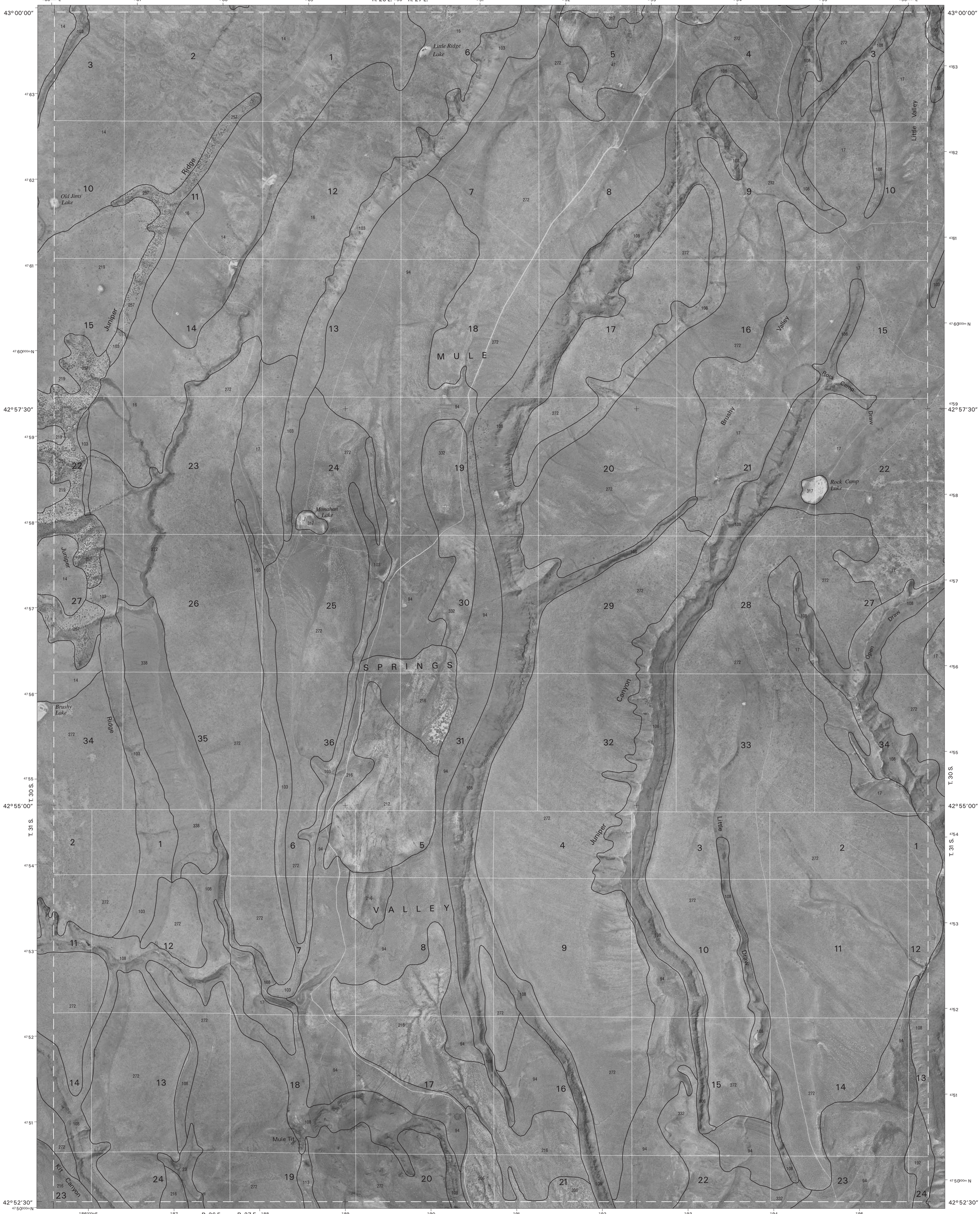
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RED BANK LAKES, OREGON
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SHEET NUMBER 119 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
ROCK CAMP DRAW QUADRANGLE
SHEET NUMBER 120 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

104	105	106
119		121
134	135	136

104 DRY VALLEY RIM
105 RAWHIDE CANYON
106 FLYBEE LAKE
119 RED BANK LAKES
121 BALLS LAKE
134 CORPORATION RIM
135 STEAMBOAT POINT
136 OREJANA CANYON

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ROCK CAMP DRAW, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 120 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
BALLS LAKE QUADRANGLE
SHEET NUMBER 121 OF 221

119° 30′ 00″ — 119° 27′ 30″ — 119° 25′ 00″ — 119° 22′ 30″
43° 00′ 00″ — 42° 57′ 30″ — 42° 55′ 00″ — 42° 52′ 30″
R. 27 E. — R. 28 E.
T. 30 S. — T. 31 S.

Valley
Little
OPEN
VALLEY
Loggerhead Canyon
THE BASIN
Open Draw
THE BASIN
Dudes Canyon
Lake in the Brush
RIM
OREJANA
Balls Lake
Rose Butte Canyon
Augustine Canyon
Orejana Canyon

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

105	106	107	105 RAWHIDE CANYON 106 FLYBEE LAKE 107 MEADOW LAKE
120		122	120 ROCK CAMP DRAW 122 CLOVER SWALE
135	136	137	135 STEAMBOAT POINT 136 OREJANA CANYON 137 DUHAIME FLAT WEST

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BALLS LAKE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
CLOVER SWALE QUADRANGLE
SHEET NUMBER 122 OF 221

119°22′30″ 119°20′00″ 119°17′30″ 119°15′00″
43°00′00″ 42°57′30″ 42°55′00″ 42°52′30″
R. 28 E. R. 29 E.
T. 30 S. T. 31 S.

ROBINSON
VALLEY
Deadmans
Bedground
Foster
Lake
FOSTER
FLAT
Matties
Ark
Little
Lake
THE
DIPPER
Kerns
Waterhole
Loggerhead
Canyon
Dudes
Canyon
Canyon
Rose Brier
Canyon
Barber
Canyon
Rose
Brier
Canyon
Augustine
Canyon
CLOVER
SWALE
Tucke
Lake
Tucke
Flat

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

106	107	108	106 FLYBEE LAKE 107 MEADOW LAKE 108 WEED LAKE BUTTE
121		123	121 BALLS LAKE 123 KEG SPRS VALLEY WEST
136	137	138	136 OREJANA CANYON 137 DUHAIME FLAT WEST 138 DUHAIME FLAT EAST

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CLOVER SWALE, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
KEG SPRS VALLEY WEST QUADRANGLE
SHEET NUMBER 123 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

107	108	109	107 MEADOW LAKE 108 WEED LAKE BUTTE 109 TWIN BUTTES
122		124	122 CLOVER SWALE 124 KEG SPRS VALLEY EAST
137	138	139	137 DUHAIME FLAT WEST 138 DUHAIME FLAT EAST 139 WALLS LAKE

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KEG SPRS VALLEY WEST, OREGON
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HARNEY COUNTY AREA, OREGON
KEG SPRS VALLEY EAST QUADRANGLE
SHEET NUMBER 124 OF 221

119°07′30″ 119°05′00″ 119°02′30″ 119°00′00″
43°00′00″ 42°57′30″ 42°55′00″ 42°52′30″

R. 29½ E. R. 29¾ E. R. 30 E. R. 31 E. R. 32 E.

Jackass Creek
Twin Road Waterhole
Jackass Creek
South Fork Jackass Creek
Taylor Lake
KEG SPRINGS VALLEY
Downs Lake
Barneys Butte
Keg Springs
T. 30 S.
T. 31 S.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

108	109	110
123		125
138	139	140

108 WEED LAKE BUTTE
109 TWIN BUTTES
110 JACKASS BUTTE
123 KEG SPRS VALLEY WEST
125 IRISH LAKE
138 DUHAIME FLAT EAST
139 WALLS LAKE
140 FRENCHGLEN

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KEG SPRS VALLEY EAST, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 124 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
IRISH LAKE QUADRANGLE
SHEET NUMBER 125 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

109	110	111
124		126
139	140	141

109 TWIN BUTTES
110 JACKASS BUTTE
111 DIAMOND SWAMP
124 KEG SPRS VALLEY EAST
126 KRUMBO RESERVOIR
139 WALLS LAKE
140 FRENCHGLEN
141 PAGE SPRINGS

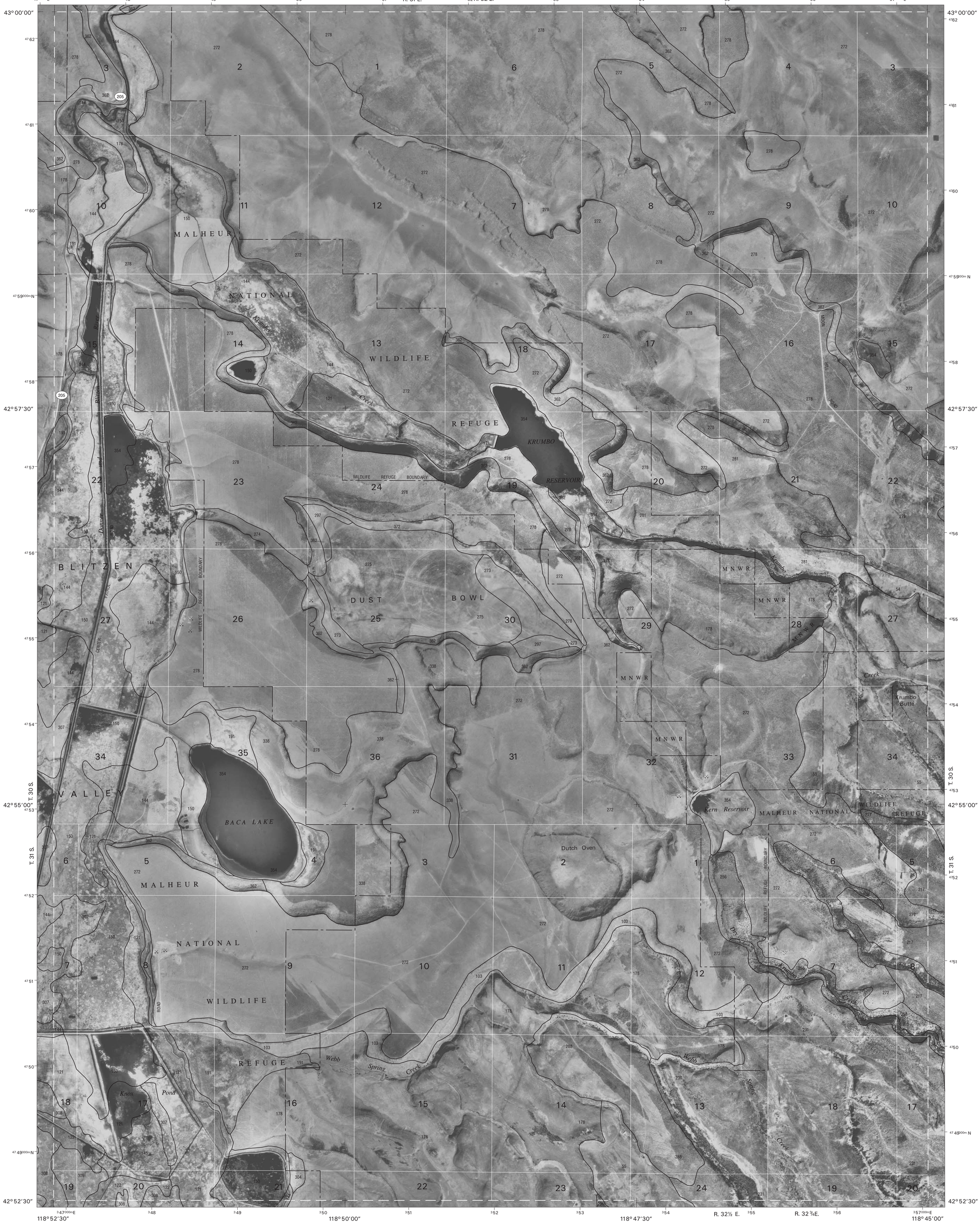
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HARNEY COUNTY AREA, OREGON
KRUMBO RESERVOIR QUADRANGLE
SHEET NUMBER 126 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

110	111	112	110 JACKASS BUTTE 111 DIAMOND SWAMP 112 DIAMOND
125		127	125 IRISH LAKE 127 KRUMBO RIDGE
140	141	142	140 FRENCHGLEN 141 PAGE SPRINGS 142 MCCOY RIDGE

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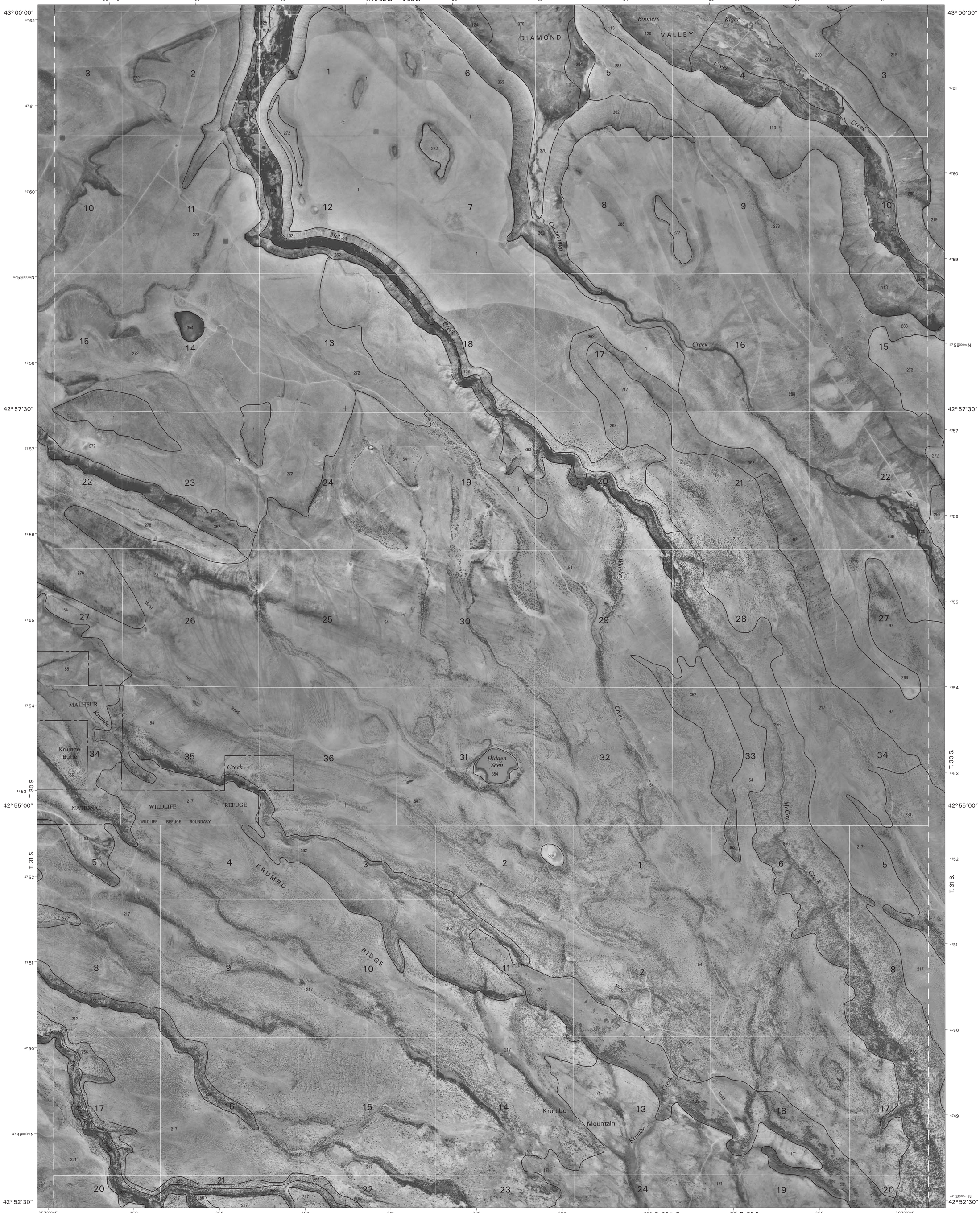
KRUMBO RESERVOIR, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 126 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
KRUMBO RIDGE QUADRANGLE
SHEET NUMBER 127 OF 221


118° 45′ 00″
118° 42′ 30″
118° 40′ 00″
118° 37′ 30″
R. 32 E.
R. 33 E.
43° 00′ 00″
42° 57′ 30″
42° 55′ 00″
42° 52′ 30″
T. 30 S.
T. 31 S.
DIAMOND
VALLEY
Booners
Kiger
Creek
McCoy
Creek
Creek
Creek

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HARNEY COUNTY AREA, OREGON
POISON SPRINGS QUADRANGLE
SHEET NUMBER 128 OF 221

118°37′30″ 118°35′00″ 118°32′30″ 118°30′00″
R. 33 E. R. 34 E.
43°00′00″ 42°57′30″ 42°55′00″ 42°52′30″
T. 30 S. T. 31 S. T. 30½ S.

The Lambing Ground
POISON SPRINGS
Poison Creek
Swamp Creek
Smyth Creek
Shepherd Creek
Little Kiger Creek
Kiger Creek
Cucamonga Creek
McCoy Creek
Mud Creek
Drake Creek
Dixon Creek
Malon Creek
Yale Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

112	113	114	112 DIAMOND 113 HAPPY VALLEY 114 ANDERSON MOUNTAIN
127		129	127 KRUMBO RIDGE 129 COMEGYS LAKE
142	143	144	142 MCCOY RIDGE 143 BIG PASTURE CREEK 144 MANN LAKE

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POISON SPRINGS, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 128 OF 221

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HARNEY COUNTY AREA, OREGON
COMEGYS LAKE QUADRANGLE
SHEET NUMBER 129 OF 221

118°30′00″ — 118°27′30″ — 118°25′00″ — 118°22′30″
43°00′00″ — 42°57′30″ — 42°55′00″ — 42°52′30″
R. 34 E. — R. 35 E.
T. 30 S. — T. 30½ S. — T. 31 S.

Comegys Lake
Squaw Lake
Riddle Creek
Coyote Creek
Squaw Creek
Flat Creek
Smyth Cr.
Dollar Lake
Mahon Creek
Stonehouse Creek
Little Stonehouse Creek
MOUNTAIN
STEENS

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

113	114	115	113 HAPPY VALLEY 114 ANDERSON MOUNTAIN 115 LAMBING CANYON
128		130	128 POISON SPRINGS 130 JUNIPER LAKE
143	144	145	143 BIG PASTURE CREEK 144 MANN LAKE 145 COFFIN BUTTE

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COMEGYS LAKE, OREGON
7.5 MINUTE SERIES
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
JUNIPER LAKE QUADRANGLE
SHEET NUMBER 130 OF 221

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″
43°00′00″ 42°57′30″ 42°55′00″ 42°52′30″
R. 35 E. R. 36 E.
T. 30 S. T. 31 S.

Oreana Flat
Ten Cent Lake
Fifteen Cent Lake
STEENS MOUNTAIN
Squaw Creek
Squaw Lake
Juniper Lake
Tudor Lake
Heath Lake
Heath Creek
South Lake
SHEEPSHEAD MOUNTAINS

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North American Datum of 1983 (NAD83), GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

114	115	116	114 ANDERSON MOUNTAIN 115 LAMBING CANYON 116 FOLLY FARM
129		131	129 COMEGYS LAKE 131 RYEGRASS BUTTE
144	145	146	144 MANN LAKE 145 COFFIN BUTTE 146 JOHNNY CREEK SW

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JUNIPER LAKE, OREGON
7.5 MINUTE SERIES
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HARNEY COUNTY AREA, OREGON
RYEGRASS BUTTE QUADRANGLE
SHEET NUMBER 131 OF 221

118°15′00″ — 118°12′30″ — 118°10′00″ — 118°07′30″
43°00′00″ — 42°57′30″ — 42°55′00″ — 42°52′30″
R. 36 E.
T. 30 S. — T. 31 S.
MALHEUR COUNTY
Lake Heath
Heath Creek
1 2 11 12 14 13 24 25 36

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

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115	116	115 LAMBING CANYON 116 FOLLY FARM
130		130 JUNIPER LAKE
145	146	145 COFFIN BUTTE 146 JOHNNY CREEK SW

RYEGRASS BUTTE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 131 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
SAGEBRUSH KNOLL QUADRANGLE
SHEET NUMBER 132 OF 221

120° 00′ 00″ — 119° 57′ 30″ — 119° 55′ 00″ — 119° 52′ 30″
42° 52′ 30″ — 42° 50′ 00″ — 42° 47′ 30″ — 42° 45′ 00″
R. 24 E.
T. 31 S. — T. 32 S.
LAKE COUNTY
Badger Draw
Sagehen Lake
South Lake Waterhole
North Eagle Butte
Eagle Lake
Eagle Butte
Sagebrush
Knoll
Draw
Dent
Sherlock Gulch
Miners Draw

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

117 JUNIPER MOUNTAIN
118 TURPIN KNOLL
133 CORN LAKE
147 RABBIT HILLS NW
148 RABBIT HILLS NE

SAGEBRUSH KNOLL, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 132 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
CORN LAKE QUADRANGLE
SHEET NUMBER 133 OF 221

119°52′30″ 119°50′00″ R. 24 E. R. 25 E. 119°47′30″ 119°45′00″
265000mE 266 267 268 269 270 271 272 273 274 275000mE
42°52′30″ 42°50′00″ 42°47′30″ 42°45′00″
4750 4749 4748 47 47000m N 4746 4745 4744 4743 4742 4741 4740 4739 4738 47 37000m N
T. 31 S. T. 32 S.

Reservoir Lake
Macs Draw
Natural Corral Draw
Corn Lake
Horseshoe Lake
HORSESHOE RIDGE
Eagle Lake
Butte
THE HORSESHOES
Mikes Draw
West Last Chance Waterhole
Last Chance Lakes

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

117	118	119	117 JUNIPER MOUNTAIN 118 TURPIN KNOLL 119 RED BANK LAKES
132		134	132 SAGEBRUSH KNOLL 134 CORPORATION RIM
147	148	149	147 RABBIT HILLS NW 148 RABBIT HILLS NE 149 BLUEJOINT LAKE WEST

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CORN LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 133 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
CORPORATION RIM QUADRANGLE
SHEET NUMBER 134 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

118	119	120
133		135
148	149	150

118 TURPIN KNOLL
119 RED BANK LAKES
120 ROCK CAMP DRAW
133 CORN LAKE
135 STEAMBOAT POINT
148 RABBIT HILLS NE
149 BLUEJOINT LAKE WEST
150 BLUEJOINT LAKE EAST

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CORPORATION RIM, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
STEAMBOAT POINT QUADRANGLE
SHEET NUMBER 135 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

119	120	121	119 RED BANK LAKES 120 ROCK CAMP DRAW 121 BALLS LAKE
134		136	134 CORPORATION RIM 136 OREJANA CANYON
149	150	151	149 BLUEJOINT LAKE WEST 150 BLUEJOINT LAKE EAST 151 SIXMILE DRAW

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STEAMBOAT POINT, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
OREJANA CANYON QUADRANGLE
SHEET NUMBER 136 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

120	121	122	120 ROCK CAMP DRAW 121 BALLS LAKE 122 CLOVER SWALE
135		137	135 STEAMBOAT POINT 137 DUHAIME FLAT WEST
150	151	152	150 BLUEJOINT LAKE EAST 151 SIXMILE DRAW 152 MURPHY WATERHOLES NE

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OREJANA CANYON, OREGON
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HARNEY COUNTY AREA, OREGON
DUHAIME FLAT WEST QUADRANGLE
SHEET NUMBER 137 OF 221

119°22′30″ — 306 000mE — R. 28 E. — 307 R. 29 E. — 308 — 309 — 119°20′00″ — 310 — 311 — 312 — 119°17′30″ — 313 — 314 — 315 — 316 000mE — 119°15′00″

42°52′30″ — 4749 — 4748 — 4747 — 4746 000m N — T. 31 S. — 4745 — 42°50′00″ — T. 32 S. — 4744 — 4743 — 4742 — 4741 — 4740 — 42°47′30″ — 4739 — 4738 — 4737 — 4736 000m N — 42°45′00″

Augustine Canyon
Tucke Flat
Natural Corral
Buckhorn Spring
Buckhorn
Little Mud Spring
DUHAIME FLAT
Canyon
Buckhorn Canyon

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

121	122	123
136		138
151	152	153

121 BALLS LAKE
122 CLOVER SWALE
123 KEG SPRS VALLEY WEST
136 OREJANA CANYON
138 DUHAIME FLAT EAST
151 SIXMILE DRAW
152 MURPHY WATERHOLES NE
153 BLITZEN NW

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DUHAIME FLAT WEST, OREGON

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HARNEY COUNTY AREA, OREGON
DUHAIME FLAT EAST QUADRANGLE
SHEET NUMBER 138 OF 221

119°15′00″ — R. 29 E. — R. 30 E. — 317 000mE — 318 — 319 — 119°12′30″ — 320 — 321 — 322 — 119°10′00″ — 323 — 324 — 325 — R. 30 E. — 326 — R. 31 E. — 119°07′30″

42°52′30″ — 4749 — 4748 — 4747 — 4746 — 4746 000mN — T. 31 S. — 4745 — 4745 000mN

42°50′00″ — T. 32 S. — 4744 — 4743 — 4742 — 4741 — 4740

42°47′30″ — 4739 — 4738 — 4737 — 4736 — 4736 000mN — 4735 000mN

42°45′00″

TUCKE FLAT

DUHAIME FLAT

Meadow Flat Reservoir

Desert Field

Miller Place

Sand Hollow

Rock Creek Point

Catlow Valley

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

122	123	124	122 CLOVER SWALE 123 KEG SPRS VALLEY WEST 124 KEG SPRS VALLEY EAST
137		139	137 DUHAIME FLAT WEST 139 WALLS LAKE
152	153	154	152 MURPHY WATERHOLES NE 153 BLITZEN NW 154 BUTLER HILL

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DUHAIME FLAT EAST, OREGON

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SHEET NUMBER 138 OF 221

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HARNEY COUNTY AREA, OREGON
WALLS LAKE QUADRANGLE
SHEET NUMBER 139 OF 221

119°07′30″ 119°05′00″ 119°02′30″ 119°00′00″
42°52′30″ 42°50′00″ 42°47′30″ 42°45′00″
R. 31 E. R. 32 E.
T. 31 S. T. 32 S.
3 27 000m E 3 28 3 29 3 30 3 31 3 32 3 33 3 34 3 35 3 36 3 26 000m E
47 48 47 47 47 46 47 45 000m N 47 44 47 43 47 42 47 41 47 40 47 39 47 38 47 37 47 36 47 35 000m N

Walls Lake Reservoir
Walls Lake
Little Walls Lake
Walls Lake Canyon
Hole in the Ground
CANYON
WATERHOLE 2
Sand Hollow
LA VOY TABLES
CATLOW VALLEY
La Voy Lakes

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

123	124	125	123 KEG SPRS VALLEY WEST 124 KEG SPRS VALLEY EAST 125 IRISH LAKE
138		140	138 DUHAIME FLAT EAST 140 FRENCHGLEN
153	154	155	153 BLITZEN NW 154 BUTLER HILL 155 ROARING SPRINGS

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WALLS LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 139 OF 221

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HARNEY COUNTY AREA, OREGON
FRENCHGLEN QUADRANGLE
SHEET NUMBER 140 OF 221

119°00′00″ 118°57′30″ 118°55′00″ 118°52′30″
42°52′30″ 42°50′00″ 42°47′30″ 42°45′00″
R. 32 E. R. 32½ E.
T. 31 S. T. 32 S.

Peanut Lake
Savoy Lake
Waterhole Canyon
Jackass Mountain
Malheur National Wildlife Refuge
Blitzen Valley
Frenchglen
P Ranch
P Hill
Steens Mountain
Refuge Boundary
Dry Creek Reservoir
Solomon Canyon
Dry Creek
Lake Valley
Catlow Valley
Alvord Desert
Patrol Center
Mud Creek
Blitzen River
Donner und Blitzen River

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

124	125	126	124 KEG SPRS VALLEY EAST 125 IRISH LAKE 126 KRUMBO RESERVOIR
139		141	139 WALLS LAKE 141 PAGE SPRINGS
154	155	156	154 BUTLER HILL 155 ROARING SPRINGS 156 TOMBSTONE CANYON

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FRENCHGLEN, OREGON
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SHEET NUMBER 140 OF 221

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HARNEY COUNTY AREA, OREGON
PAGE SPRINGS QUADRANGLE
SHEET NUMBER 141 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

125	126	127
140		142
155	156	157

125 IRISH LAKE
126 KRUMBO RESERVOIR
127 KRUMBO RIDGE
140 FRENCHGLEN
142 MCCOY RIDGE
155 ROARING SPRINGS
156 TOMBSTONE CANYON
157 FISH LAKE

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PAGE SPRINGS, OREGON
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HARNEY COUNTY AREA, OREGON
MCCOY RIDGE QUADRANGLE
SHEET NUMBER 142 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

126	127	128
141		143
156	157	158

126 KRUMBO RESERVOIR
127 KRUMBO RIDGE
128 POISON SPRINGS
141 PAGE SPRINGS
143 BIG PASTURE CREEK
156 TOMBSTONE CANYON
157 FISH LAKE
158 WILDHORSE LAKE

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MCCOY RIDGE, OREGON
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HARNEY COUNTY AREA, OREGON
BIG PASTURE CREEK QUADRANGLE
SHEET NUMBER 143 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

127	128	129	127 KRUMBO RIDGE 128 POISON SPRINGS 129 COMEGYS LAKE
142		144	142 MCCOY RIDGE 144 MANN LAKE
157	158	159	157 FISH LAKE 158 WILDHORSE LAKE 159 MIRANDA FLAT

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BIG PASTURE CREEK, OREGON

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HARNEY COUNTY AREA, OREGON
MANN LAKE QUADRANGLE
SHEET NUMBER 144 OF 221

118°30′00″ 118°27′30″ 118°25′00″ 118°22′30″
42°52′30″ 42°50′00″ 42°47′30″ 42°45′00″
R. 34 E. R. 35 E.
T. 31 S. T. 32 S.

Paddle Meadows
Sullivan Meadows
Deep Creek
Sullivan Creek
Stonehouse Creek
Little Stonehouse Creek
Summit Creek
MOUNTAIN STEENS
Strode Springs
Tyrrl Creek
Hole in the Ground
Mann Lake
House Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

128	129	130
143		145
158	159	160

128 POISON SPRINGS
129 COMEGYS LAKE
130 JUNIPER LAKE
143 BIG PASTURE CREEK
145 COFFIN BUTTE
158 WILDHORSE LAKE
159 MIRANDA FLAT
160 MICKEY SPRINGS

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
COFFIN BUTTE QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

129	130	131
144		146
159	160	161

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129 COMEGYS LAKE
130 JUNIPER LAKE
131 RYEGRASS BUTTE
144 MANN LAKE
146 JOHNNY CREEK SW
159 MIRANDA FLAT
160 MICKEY SPRINGS
161 ANCIENT LAKE WELL

COFFIN BUTTE, OREGON
7.5 MINUTE SERIES
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HARNEY COUNTY AREA, OREGON
JOHNNY CREEK SW QUADRANGLE
SHEET NUMBER 146 OF 221

R. 36 E.

MALHEUR COUNTY

MOUNTAINS

TABLE MOUNTAIN

SHEEPSHEAD

T. 31 S.

T. 32 S.

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

130	131	
145		
160	161	

130 JUNIPER LAKE
131 RYEGRASS BUTTE
145 COFFIN BUTTE
160 MICKEY SPRINGS
161 ANCIENT LAKE WELL

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JOHNNY CREEK SW, OREGON
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HARNEY COUNTY AREA, OREGON
RABBIT HILLS NW QUADRANGLE
SHEET NUMBER 147 OF 221

120° 00′ 00″ | 119° 57′ 30″ | 119° 55′ 00″ | 119° 52′ 30″

R. 24 E.

T. 32 S.

LAKE COUNTY

42° 45′ 00″ | 42° 42′ 30″ | 42° 40′ 00″ | 42° 37′ 30″

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

132 SAGEBRUSH KNOLL
133 CORN LAKE
148 RABBIT HILLS NE

RABBIT HILLS NW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 147 OF 221

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HARNEY COUNTY AREA, OREGON
RABBIT HILLS NE QUADRANGLE
SHEET NUMBER 148 OF 221

119°52′30″ 119°50′00″ 119°47′30″ 119°45′00″

R. 24 E. R. 25 E.

T. 32 S.

LAKE COUNTY

42°45′00″ 42°42′30″ 42°40′00″ 42°37′30″

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

132	133	134	132 SAGEBRUSH KNOLL 133 CORN LAKE 134 CORPORATION RIM 147 RABBIT HILLS NW 149 BLUEJOINT LAKE WEST
147		149	

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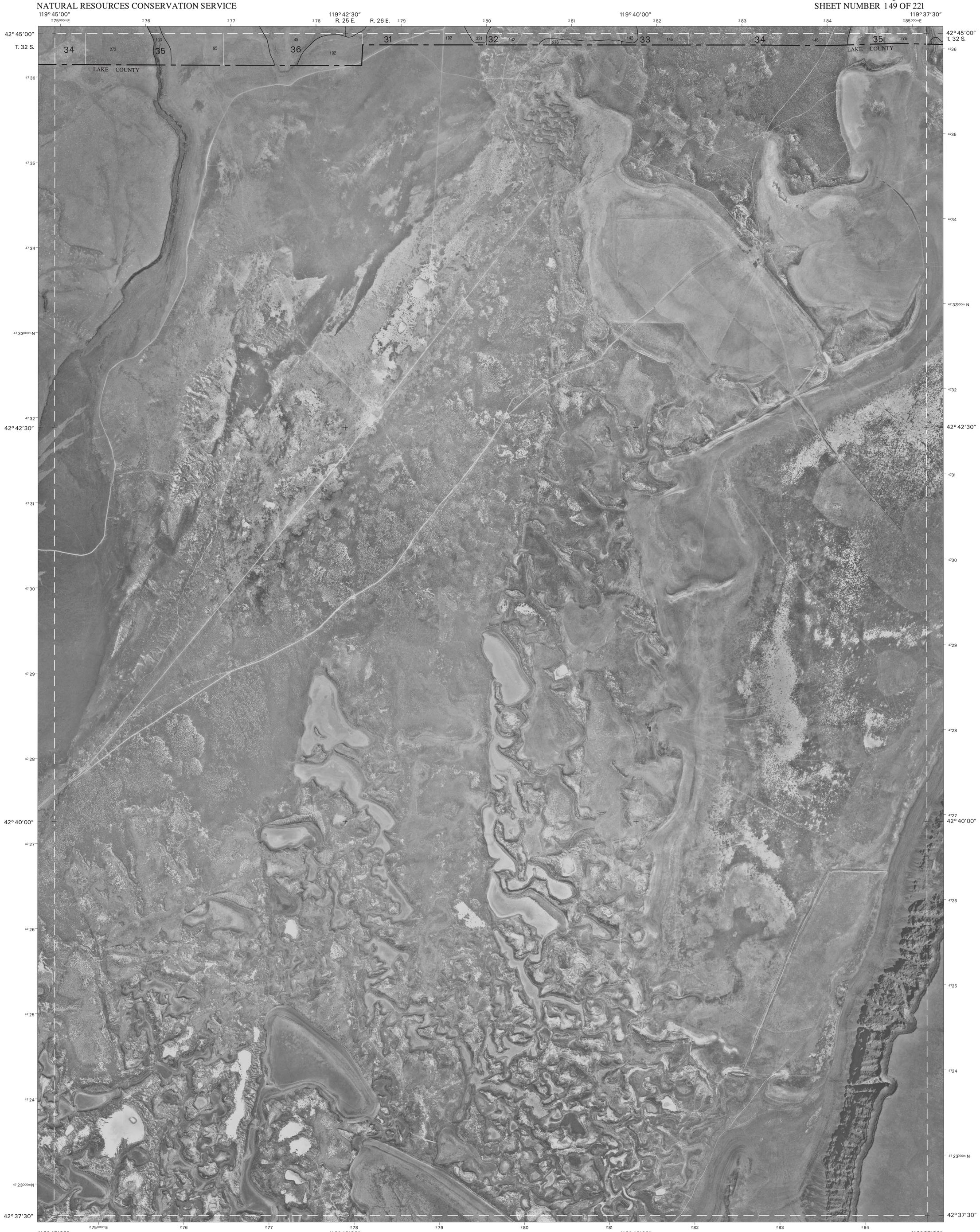
RABBIT HILLS NE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 148 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
BLUEJOINT LAKE WEST QUADRANGLE
SHEET NUMBER 149 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

133	134	135	133 CORN LAKE 134 CORPORATION RIM 135 STEAMBOAT POINT 148 RABBIT HILLS NE 150 BLUEJOINT LAKE EAST
148		150	

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BLUEJOINT LAKE WEST, OREGON

7.5 MINUTE SERIES
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HARNEY COUNTY AREA, OREGON
BLUEJOINT LAKE EAST QUADRANGLE
SHEET NUMBER 150 OF 221

119° 37′ 30″ — 119° 35′ 00″ — 119° 32′ 30″ — 119° 30′ 00″

42° 45′ 00″ T. 32 S. — 42° 42′ 30″ — 42° 40′ 00″ — 42° 37′ 30″

R. 26 E. — R. 27 E.

LAKE COUNTY

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

134	135	136
149		151

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134 CORPORATION RIM
135 STEAMBOAT POINT
136 OREJANA CANYON
149 BLUEJOINT LAKE WEST
151 SIXMILE DRAW

BLUEJOINT LAKE EAST, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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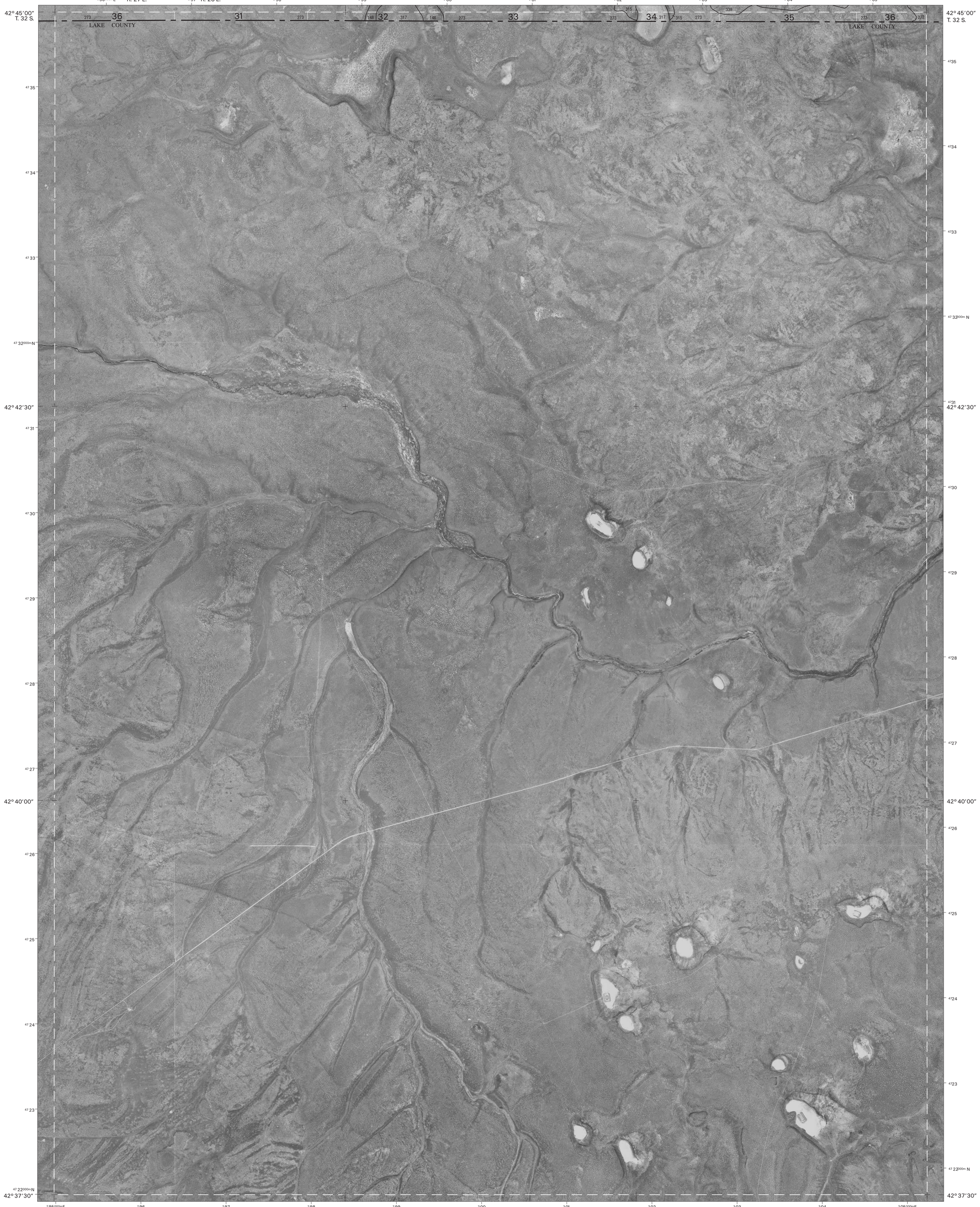
HARNEY COUNTY AREA, OREGON
SIXMILE DRAW QUADRANGLE
SHEET NUMBER 151 OF 221

119° 30′ 00″ — 119° 27′ 30″ — 119° 25′ 00″ — 119° 22′ 30″

42° 45′ 00″ T. 32 S. — 42° 42′ 30″ — 42° 40′ 00″ — 42° 37′ 30″

R. 27 E. — R. 28 E.

LAKE COUNTY



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

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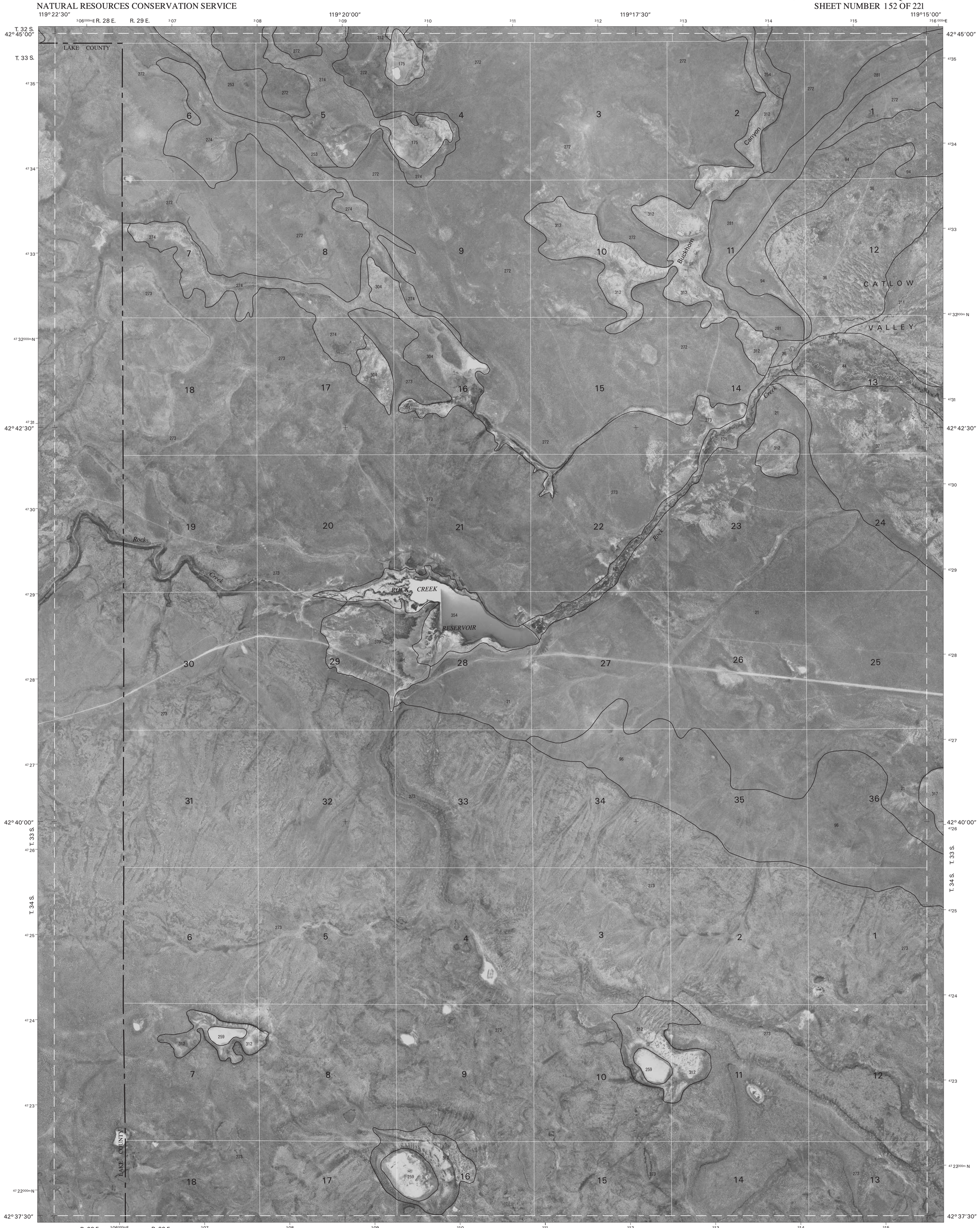
135	136	137	135 STEAMBOAT POINT 136 OREJANA CANYON 137 DUHAIME FLAT WEST
150		152	150 BLUEJOINT LAKE EAST 152 MURPHY WATERHOLES NE
		162	162 GUANO RESERVOIR

SIXMILE DRAW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 151 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
MURPHY WATERHOLES NE QUADRANGLE
SHEET NUMBER 152 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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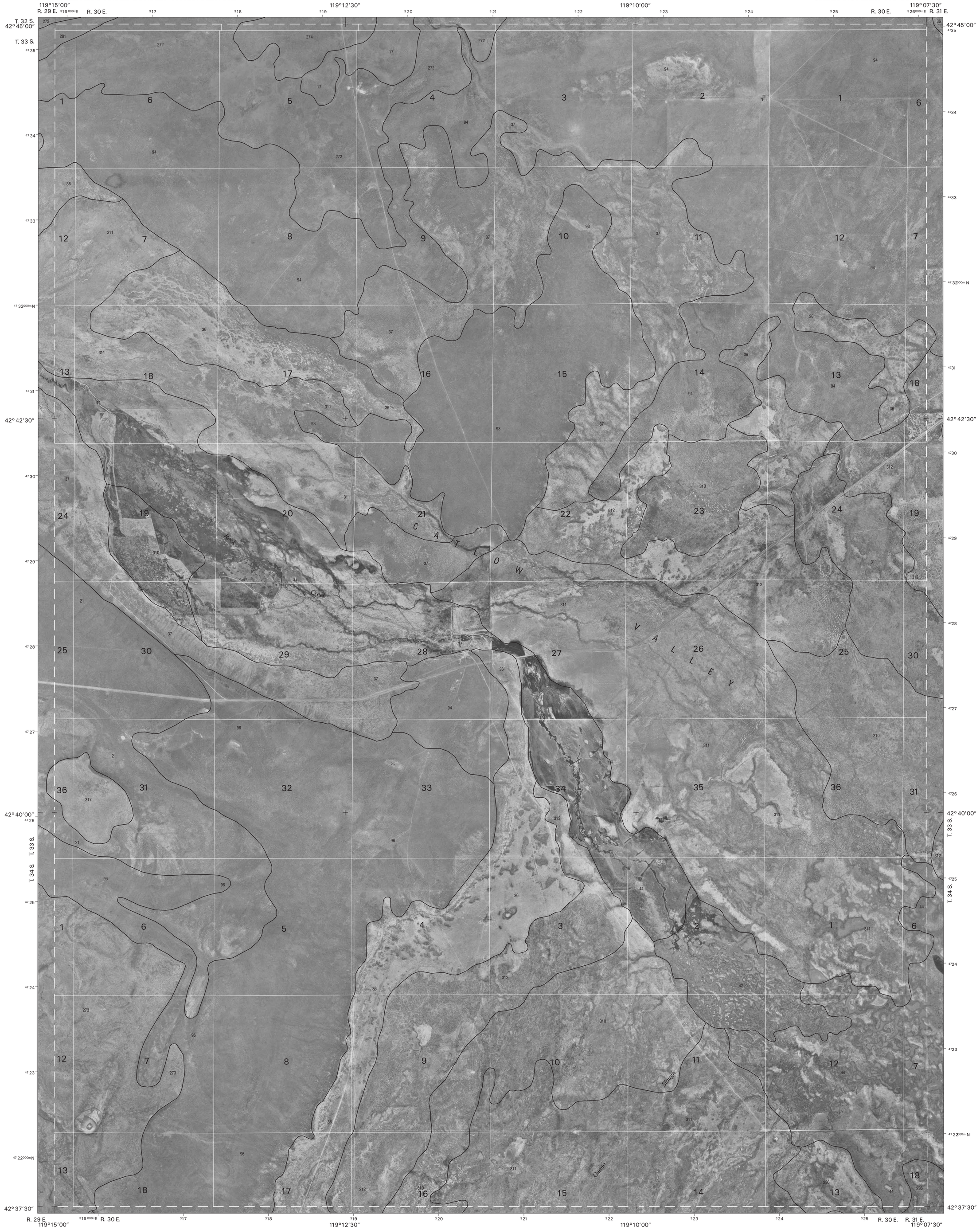
136	137	138	136 OREJANA CANYON 137 DUHAIME FLAT WEST 138 DUHAIME FLAT EAST
151		153	151 SIXMILE DRAW 153 BLITZEN NW
	162	163	162 GUANO RESERVOIR 163 BLITZEN SW

MURPHY WATERHOLES NE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 152 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
BLITZEN NW QUADRANGLE
SHEET NUMBER 153 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

137	138	139
152		154
162	163	164

137 DUHAIME FLAT WEST
138 DUHAIME FLAT EAST
139 WALLS LAKE
152 MURPHY WATERHOLES NE
154 BUTLER HILL
162 GUANO RESERVOIR
163 BLITZEN SW
164 BLITZEN

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BLITZEN NW, OREGON

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HARNEY COUNTY AREA, OREGON
BUTLER HILL QUADRANGLE
SHEET NUMBER 154 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

138	139	140	138 DUHAIME FLAT EAST 139 WALLS LAKE 140 FRENCHGLEN
153		155	153 BLITZEN NW 155 ROARING SPRINGS
163	164	165	163 BLITZEN SW 164 BLITZEN 165 HOME CREEK BUTTE

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BUTLER HILL, OREGON
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HARNEY COUNTY AREA, OREGON
ROARING SPRINGS QUADRANGLE
SHEET NUMBER 155 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

139	140	141
154		156
164	165	166

139 WALLS LAKE
140 FRENCHGLEN
141 PAGE SPRINGS
154 BUTLER HILL
156 TOMBSTONE CANYON
164 BLITZEN
165 HOME CREEK BUTTE
166 ROARING SPRINGS SE

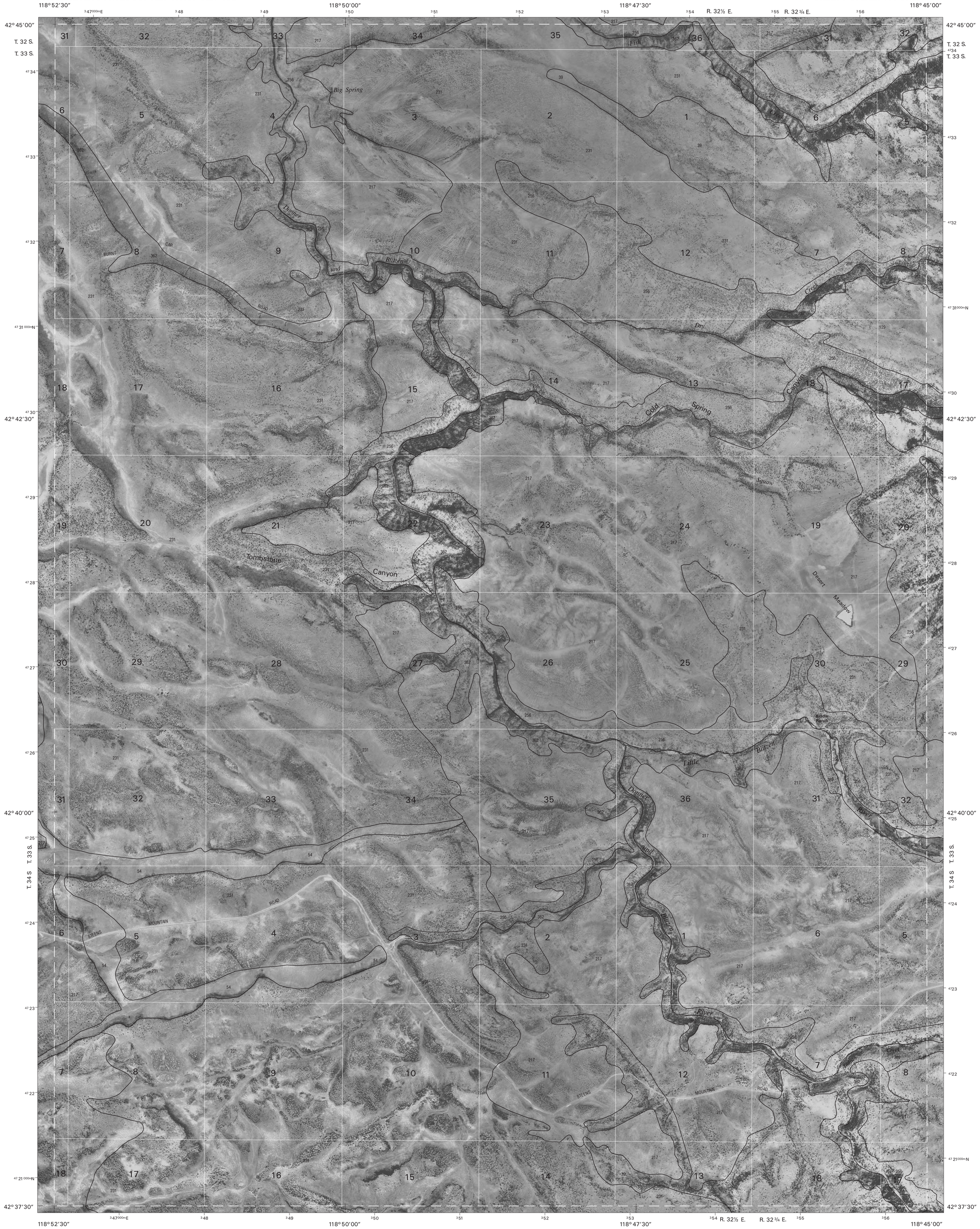
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ROARING SPRINGS, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
TOMBSTONE CANYON QUADRANGLE
SHEET NUMBER 156 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

140	141	142
155		157
165	166	167

140 FRENCHGLEN
141 PAGE SPRINGS
142 MCCOY RIDGE
155 ROARING SPRINGS
157 FISH LAKE
165 HOME CREEK BUTTE
166 ROARING SPRINGS SE
167 ANKLE CREEK

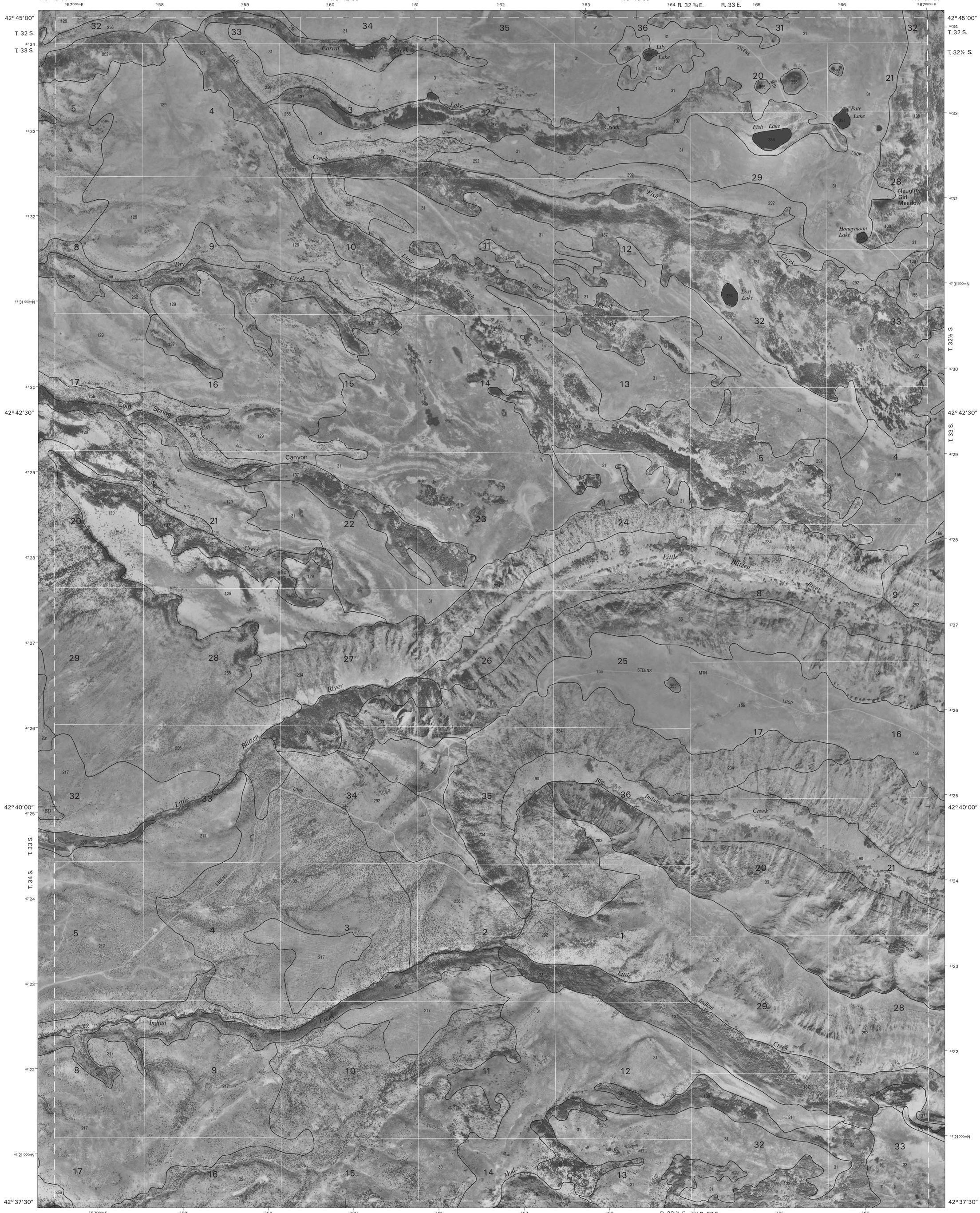
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TOMBSTONE CANYON, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
FISH LAKE QUADRANGLE
SHEET NUMBER 157 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

141	142	143	141 PAGE SPRINGS 142 MCCOY RIDGE 143 BIG PASTURE CREEK
156		158	156 TOMBSTONE CANYON 158 WILDHORSE LAKE
166	167	168	166 ROARING SPRINGS SE 167 ANKLE CREEK 168 ALVORD HOT SPRINGS

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HARNEY COUNTY AREA, OREGON
WILDHORSE LAKE QUADRANGLE
SHEET NUMBER 158 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

142	143	144	142 MCCOY RIDGE 143 BIG PASTURE CREEK 144 MANN LAKE
157		159	157 FISH LAKE 159 MIRANDA FLAT
167	168	169	167 ANKLE CREEK 168 ALVORD HOT SPRINGS 169 MIRANDA FLAT SW

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WILDHORSE LAKE, OREGON
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HARNEY COUNTY AREA, OREGON
MIRANDA FLAT QUADRANGLE
SHEET NUMBER 159 OF 221

118° 30′ 00″ — 378000mE — 379 — 380 — R. 34 E. — 381 — R. 35 E. — 382 — 383 — 118° 27′ 30″ — 384 — 118° 25′ 00″ — 385 — 386 — 387 — 118° 22′ 30″

42° 45′ 00″ — 47 33 — 47 32 — 47 31 — 47 30000mN — T. 32 S. — T. 33 S. — 42° 42′ 30″ — 47 29 — 47 28 — 47 27 — 47 26 — 47 25 — 42° 40′ 00″ — 47 24 — 47 23 — 47 22 — 47 21 — 47 20000mN — 42° 37′ 30″



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

143	144	145	143 BIG PASTURE CREEK 144 MANN LAKE 145 COFFIN BUTTE
158		160	158 WILDHORSE LAKE 160 MICKEY SPRINGS
168	169	170	168 ALVORD HOT SPRINGS 169 MIRANDA FLAT SW 170 MIRANDA FLAT SE

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MIRANDA FLAT, OREGON
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HARNEY COUNTY AREA, OREGON
MICKEY SPRINGS QUADRANGLE
SHEET NUMBER 160 OF 221

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″
42°45′00″ 42°42′30″ 42°40′00″ 42°37′30″
388000mE 389 390 391 392 393 394 395 396 397
R. 35 E. R. 36 E.
T. 32 S. T. 33 S.
4733 4732 4731 47 30000m N 4729 4728 4727 4726 4725 4724 4723 4722 4721 47 20000m N

MICKEY
BASIN
Butte
Mickey
Ancient Lake
Mickey Springs

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

144	145	146	144 MANN LAKE 145 COFFIN BUTTE 146 JOHNNY CREEK SW
159		161	159 MIRANDA FLAT 161 ANCIENT LAKE WELL 169 MIRANDA FLAT SW 170 MIRANDA FLAT SE
169	170	171	171 COYOTE LAKE WEST

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SHEET NUMBER 160 OF 221

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HARNEY COUNTY AREA, OREGON
ANCIENT LAKE WELL QUADRANGLE
SHEET NUMBER 161 OF 221

118°15′00″ — 118°12′30″ — 118°10′00″ — 118°07′30″
42°45′00″ — 42°42′30″ — 42°40′00″ — 42°37′30″
398000mE — 399 — 400 — 401 — 402 — 403 — 404 — 405 — 406 — 407 — 408000mE
4733 — 4732 — 47 30000mN — 4731 — 4729 — 4728 — 4727 — 4726 — 4725 — 4724 — 4723 — 4722 — 4721 — 47 20000mN
R. 36 E.
T. 32 S.
T. 33 S.
MALHEUR COUNTY

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

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145	146		145 COFFIN BUTTE 146 JOHNNY CREEK SW
160			160 MICKEY SPRINGS
170	171		170 MIRANDA FLAT SE 171 COYOTE LAKE WEST

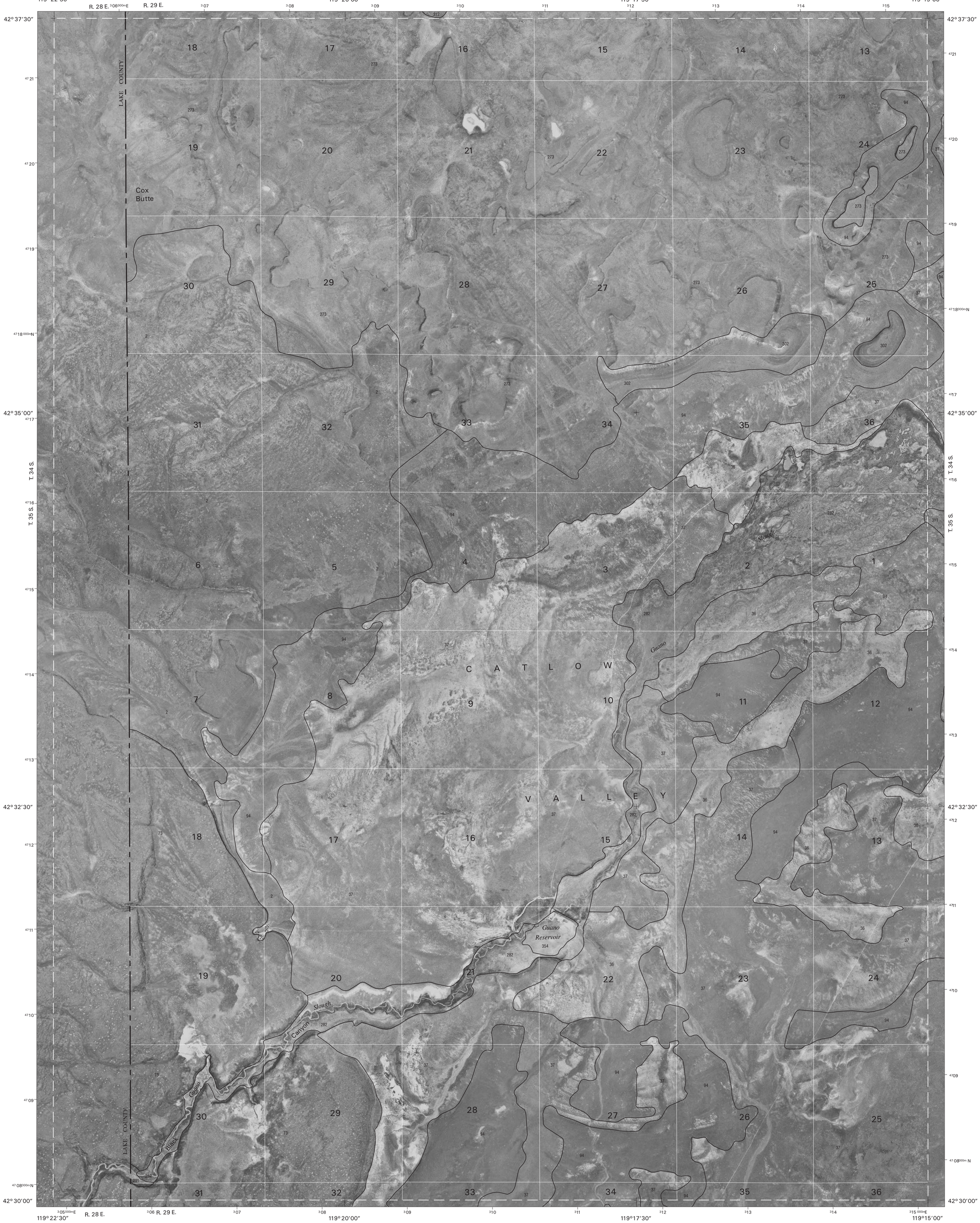
ANCIENT LAKE WELL, OREGON

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SHEET NUMBER 161 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
GUANO RESERVOIR QUADRANGLE
SHEET NUMBER 162 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

151	152	153	151 SIXMILE DRAW 152 MURPHY WATERHOLES NE 153 BLITZEN NW
		163	163 BLITZEN SW
	172	173	172 BEATYS BUTTE 173 FISH FIN RIM

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GUANO RESERVOIR, OREGON

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HARNEY COUNTY AREA, OREGON
BLITZEN SW QUADRANGLE
SHEET NUMBER 163 OF 221

119°15′00″ R. 29 E. 316 000mE R. 30 E. 119°12′30″ 119°10′00″ R. 30 E. 119°07′30″ R. 31 E.

42°37′30″ 42°35′00″ 42°32′30″ 42°30′00″

4721 4720 4719 4718 000mN 4717 4716 4715 4714 4713 4712 4711 4710 4709 4708 000m N

T. 34 S. T. 35 S.

Slough Guano Slough Guano

ATLOW VALLEY

315 000mE 318 319 320 321 322 323 324 325000mE

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

152	153	154	152 MURPHY WATERHOLES NE 153 BLITZEN NW 154 BUTLER HILL
162		164	162 GUANO RESERVOIR 164 BLITZEN
172	173	174	172 BEATYS BUTTE 173 FISH FIN RIM 174 COYOTE GAP

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BLITZEN SW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 163 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
BLITZEN QUADRANGLE
SHEET NUMBER 164 OF 221

119° 07′ 30″ — 119° 05′ 00″ — 119° 02′ 30″ — 119° 00′ 00″

42° 37′ 30″ — 42° 35′ 00″ — 42° 32′ 30″ — 42° 30′ 00″

R. 31 E. — R. 32 E.

T. 34 S. — T. 35 S.

Blitzen

McBurney Well

CATTLE VALLEY

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

153	154	155
163		165
173	174	175

153 BLITZEN NW
154 BUTLER HILL
155 ROARING SPRINGS
163 BLITZEN SW
165 HOME CREEK BUTTE
173 FISH FIN RIM
174 COYOTE GAP
175 GARRISON LAKE

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BLITZEN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 164 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
HOME CREEK BUTTE QUADRANGLE
SHEET NUMBER 165 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

154	155	156	154 BUTLER HILL 155 ROARING SPRINGS 156 TOMBSTONE CANYON
164		166	164 BLITZEN 166 ROARING SPRINGS SE
174	175	176	174 COYOTE GAP 175 GARRISON LAKE 176 SKULL CREEK BUTTE

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HARNEY COUNTY AREA, OREGON
ROARING SPRINGS SE QUADRANGLE
SHEET NUMBER 166 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

155	156	157	155 ROARING SPRINGS 156 TOMBSTONE CANYON 157 FISH LAKE
165		167	165 HOME CREEK BUTTE 167 ANKLE CREEK
175	176	177	175 GARRISON LAKE 176 SKULL CREEK BUTTE 177 V LAKE

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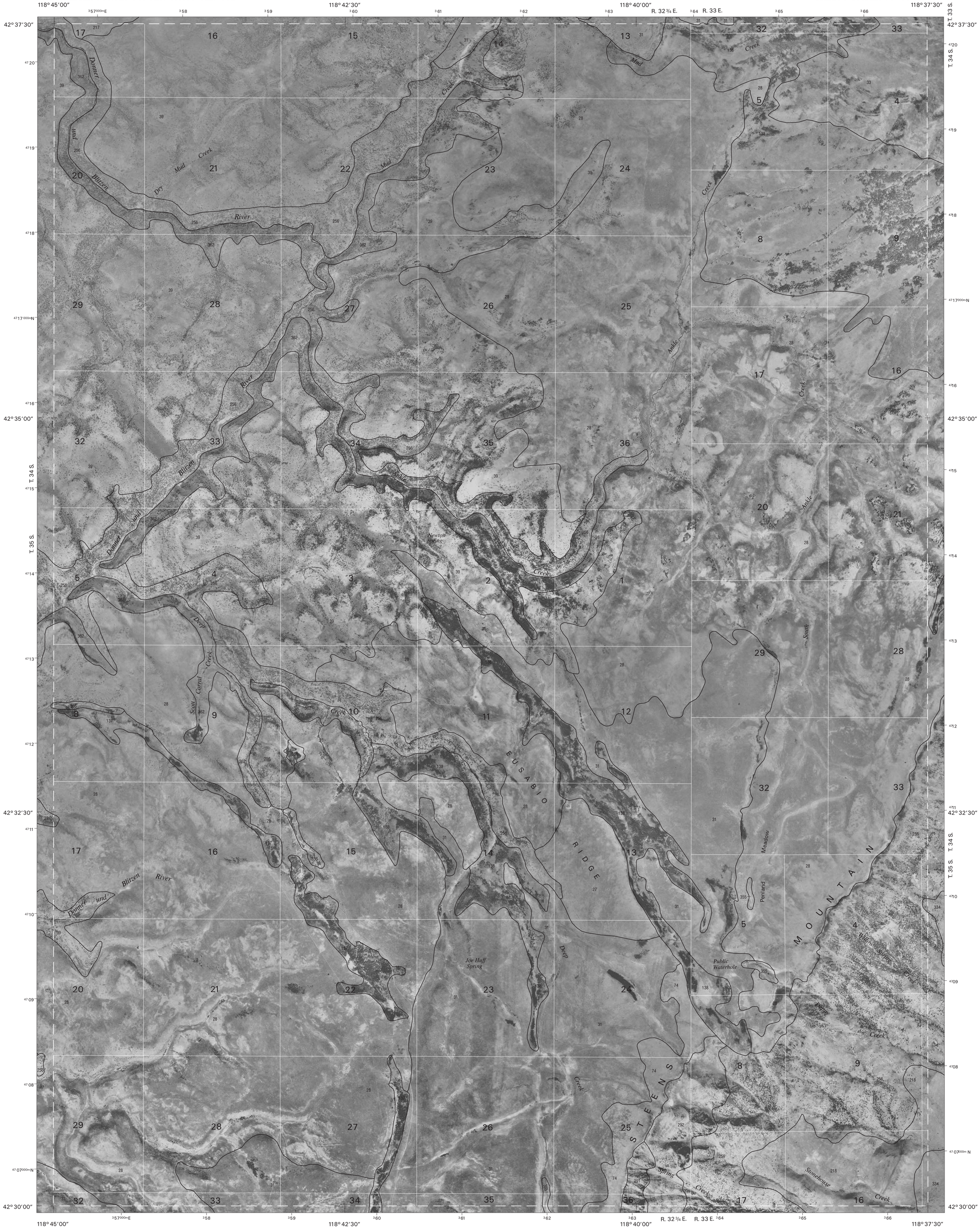
ROARING SPRINGS SE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 166 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
ANKLE CREEK QUADRANGLE
SHEET NUMBER 167 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

156	157	158	156 TOMBSTONE CANYON 157 FISH LAKE 158 WILDHORSE LAKE
166		168	166 ROARING SPRINGS SE 168 ALVORD HOT SPRINGS 176 SKULL CREEK BUTTE
176	177	178	177 V LAKE 178 ANDREWS

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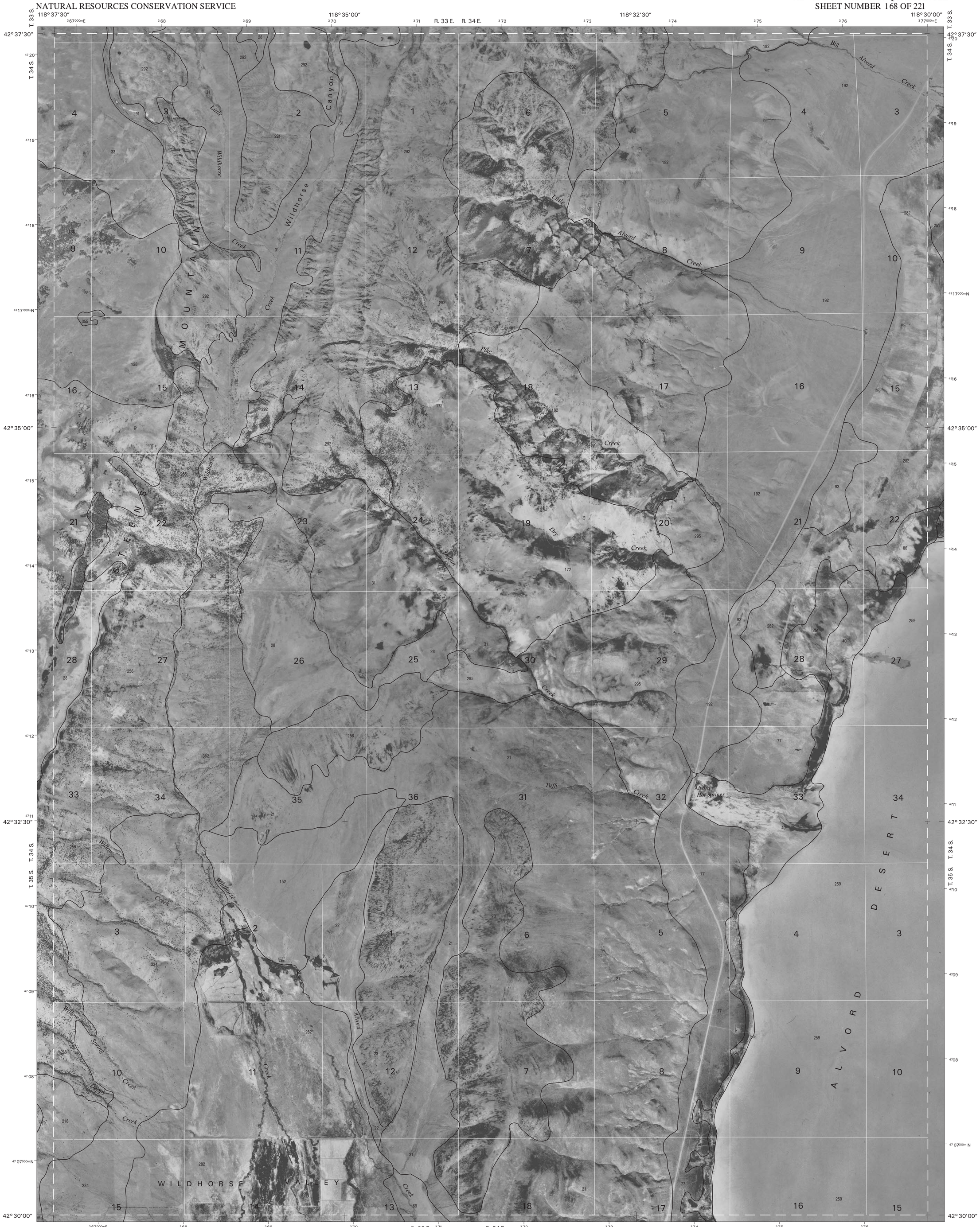
ANKLE CREEK, OREGON

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SHEET NUMBER 167 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
ALVORD HOT SPRINGS QUADRANGLE
SHEET NUMBER 168 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

157	158	159
167		169
177	178	179

157 FISH LAKE
158 WILDHORSE LAKE
159 MIRANDA FLAT
167 ANKLE CREEK
169 MIRANDA FLAT SW
177 V LAKE
178 ANDREWS
179 TULE SPRINGS

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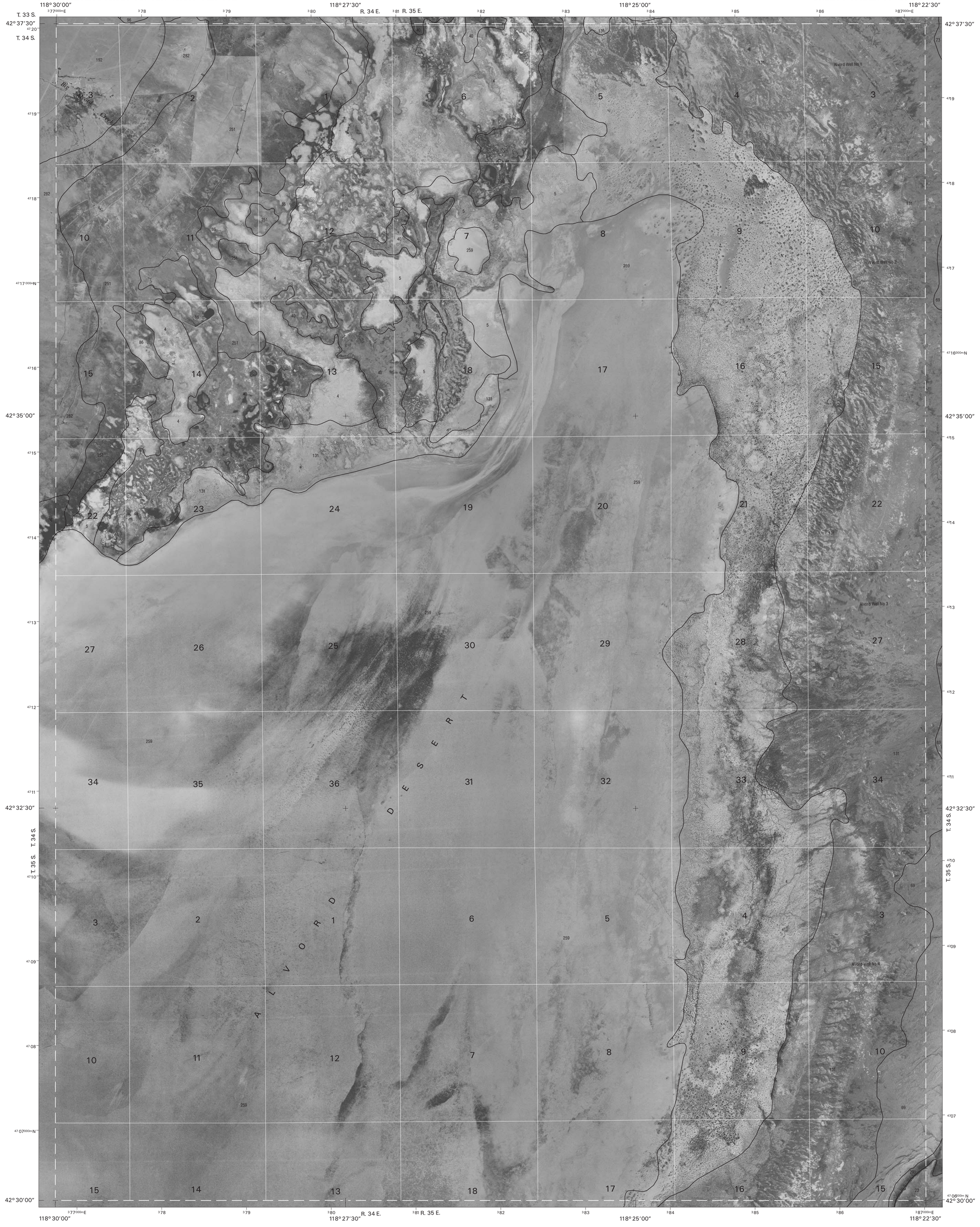
ALVORD HOT SPRINGS, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 168 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
MIRANDA FLAT SW QUADRANGLE
SHEET NUMBER 169 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

158	159	160
168		170
178	179	180

158 WILDHORSE LAKE
159 MIRANDA FLAT
160 MICKEY SPRINGS
168 ALVORD HOT SPRINGS
170 MIRANDA FLAT SE
178 ANDREWS
179 TULE SPRINGS
180 TULE SPRINGS NE

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MIRANDA FLAT SW, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
MIRANDA FLAT SE QUADRANGLE
SHEET NUMBER 170 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

159	160	161	159 MIRANDA FLAT 160 MICKEY SPRINGS 161 ANCIENT LAKE WELL
169		171	169 MIRANDA FLAT SW 171 COYOTE LAKE WEST
179	180	181	179 TULE SPRINGS 180 TULE SPRINGS NE 181 COYOTE MEADOWS

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HARNEY COUNTY AREA, OREGON
COYOTE LAKE WEST QUADRANGLE
SHEET NUMBER 171 OF 221

118°15′00″ 118°12′30″ 118°10′00″ 118°07′30″
42°37′30″ 42°35′00″ 42°32′30″
398000mE 399 400 401 402 403 404 405 406 407
4719 4718 4717 4716000mN 4715 4714 4713 4712 4711 4710 4709 4708 4707 4706000mN
R. 36 E.
T. 34 S.
T. 35 S.
MALHEUR COUNTY

Lower Willow Creek Waterhole

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

160	161	
170		
180	181	

160 MICKEY SPRINGS
161 ANCIENT LAKE WELL
170 MIRANDA FLAT SE
180 TULE SPRINGS NE
181 COYOTE MEADOWS

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COYOTE LAKE WEST, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
BEATYS BUTTE QUADRANGLE
SHEET NUMBER 172 OF 221

119°22′30″ 305 000mE 306 307 119°20′00″ 308 309 310 R. 29 E. 311 119°17′30″ 312 313 314 119°15′00″ 315 000mE

42°30′00″ 4707 T. 35 S. T. 36 S. 4706 4705 4704 000m N 42°27′30″ 4703 4702 4701 4700 4699 42°25′00″ 4698 4697 T. 36 S. T. 37 S. 4696 4695 4694 000m N 42°22′30″

LAKE COUNTY

RED HILLS

Rattlesnake Butte

Willow Spring

DL Spring

Gulch

Road

East

Mustang Basin

BEATYS BUTTE

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

	162	163	162 GUANO RESERVOIR 163 BLITZEN SW
		173	173 FISH FIN RIM
	182	183	182 MAHOGANY BUTTE 183 SURVEYORS LAKE

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BEATYS BUTTE, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
FISH FIN RIM QUADRANGLE
SHEET NUMBER 173 OF 221

FISH FIN RIM, OREGON

7.5 MINUTE SERIES
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

162	163	164	162 GUANO RESERVOIR 163 BLITZEN SW 164 BLITZEN
172		174	172 BEATYS BUTTE 174 COYOTE GAP
182	183	184	182 MAHOGANY BUTTE 183 SURVEYORS LAKE 184 COYOTE GAP SE

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
COYOTE GAP QUADRANGLE
SHEET NUMBER 174 OF 221

119° 07′ 30″ — 119° 05′ 00″ — 119° 02′ 30″ — 119° 00′ 00″
42° 30′ 00″ — 42° 27′ 30″ — 42° 25′ 00″ — 42° 22′ 30″
3 26 000m E — 3 27 — 3 28 — 3 29 — 3 30 — 3 31 — 3 32 — 3 33 — 3 34 — 3 35 000m E
R. 31 E. — R. 32 E.
T. 35 S. — T. 35½ S. — T. 36 S. — T. 37 S.
47 07 — 47 06 — 47 05 — 47 04 000m N — 47 03 — 47 02 — 47 01 — 47 00 — 46 99 — 46 98 — 46 97 — 46 96 — 46 95 — 46 94 000m N

Well No 2
Well No 7
Well No 6
Coyote Gap
GARRISON LAKE
CATTLE CANYON

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North American Datum of 1983 (NAD83), GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

163	164	165	163 BLITZEN SW 164 BLITZEN 165 HOME CREEK BUTTE
173		175	173 FISH FIN RIM 175 GARRISON LAKE 183 SURVEYORS LAKE
183	184	185	184 COYOTE GAP SE 185 SQUARE MOUNTAIN

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HARNEY COUNTY AREA, OREGON
GARRISON LAKE QUADRANGLE
SHEET NUMBER 175 OF 221

119° 00′ 00″ — 3 36 000m E — 3 37 — 3 38 — 118° 57′ 30″ — 3 39 — 3 40 — 3 41 — 3 42 — 118° 55′ 00″ — 3 43 — 3 44 — R. 32 E. — R. 32½ E. — 3 45 — 3 46 000m E — 118° 52′ 30″

42° 30′ 00″ — 47 07 — 47 06 — T. 35 S. — T. 35½ S. — 47 05 — 47 04 000m N — 47 03 — 42° 27′ 30″ — T. 35½ S. — T. 36 S. — 47 02 — 47 01 — 47 00 — 46 99 — 46 98 — 42° 25′ 00″ — 46 97 — 46 96 — 46 95 — 46 94 000m N — 42° 22′ 30″

West Field Lake
Thousemile Reservoir
Sixmile Lake
HL Ck
GARRISON LAKE
LAKE ALTEX
Well No 3
Well No 4
Well No 5
Skull Creek

205

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

164	165	166	164 BLITZEN 165 HOME CREEK BUTTE 166 ROARING SPRINGS SE
174		176	174 COYOTE GAP 176 SKULL CREEK BUTTE
184	185	186	184 COYOTE GAP SE 185 SQUARE MOUNTAIN 186 FIELDS BASIN

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HARNEY COUNTY AREA, OREGON
SKULL CREEK BUTTE QUADRANGLE
SHEET NUMBER 176 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

165	166	167	165 HOME CREEK BUTTE 166 ROARING SPRINGS SE 167 ANKLE CREEK
175		177	175 GARRISON LAKE 177 V LAKE
185	186	187	185 SQUARE MOUNTAIN 186 FIELDS BASIN 187 FIELDS

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SKULL CREEK BUTTE, OREGON

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HARNEY COUNTY AREA, OREGON
V LAKE QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

166	167	168
176		178
186	187	188

166 ROARING SPRINGS SE
167 ANKLE CREEK
168 ALVORD HOT SPRINGS
176 SKULL CREEK BUTTE
178 ANDREWS
186 FIELDS BASIN
187 FIELDS
188 BORAX LAKE

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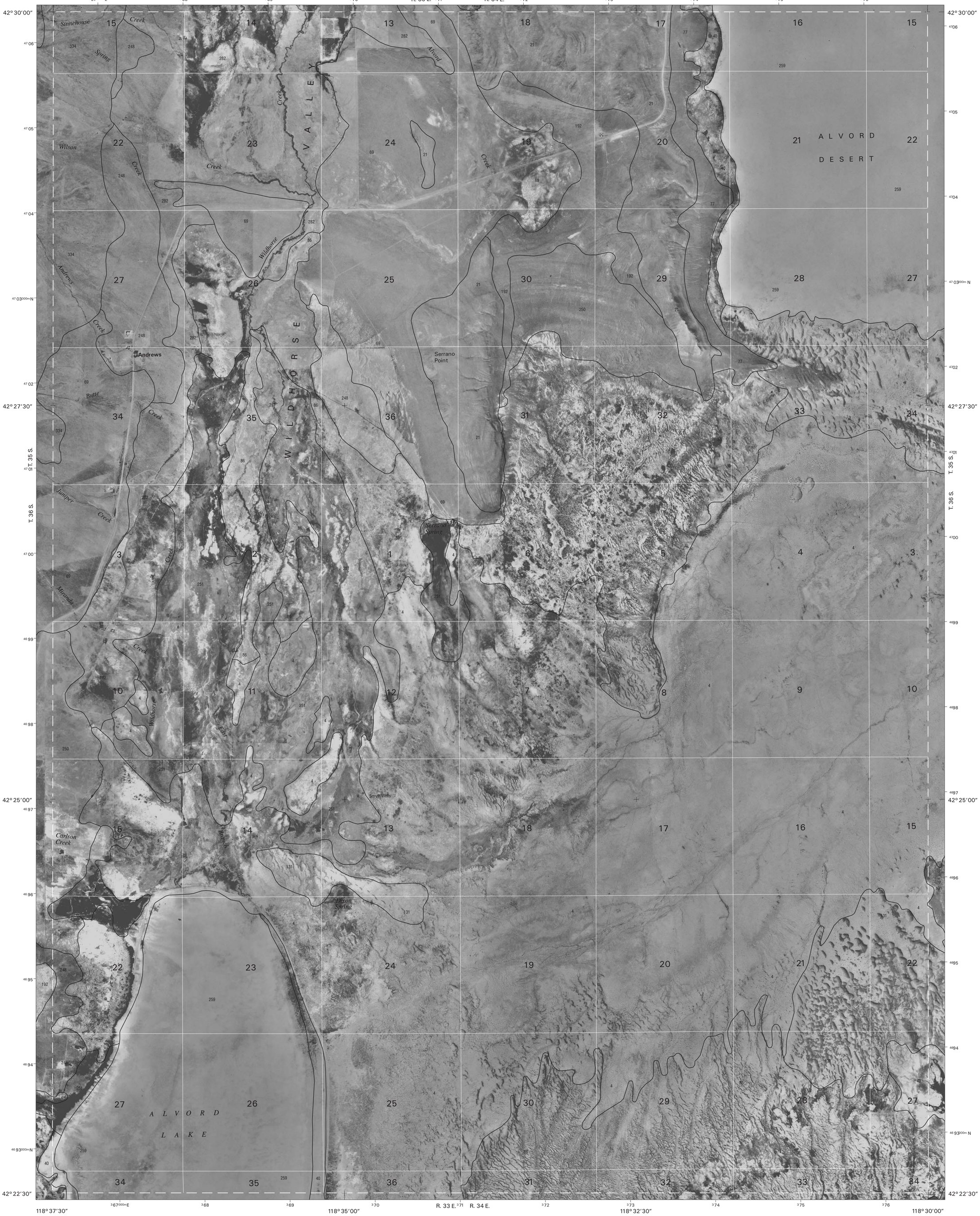
V LAKE, OREGON

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HARNEY COUNTY AREA, OREGON
ANDREWS QUADRANGLE
SHEET NUMBER 178 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

167	168	169	167 ANKLE CREEK 168 ALVORD HOT SPRINGS 169 MIRANDA FLAT SW 177 V LAKE 179 TULE SPRINGS 187 FIELDS 188 BORAX LAKE 189 RED LOOKOUT BUTTE
177		179	
187	188	189	

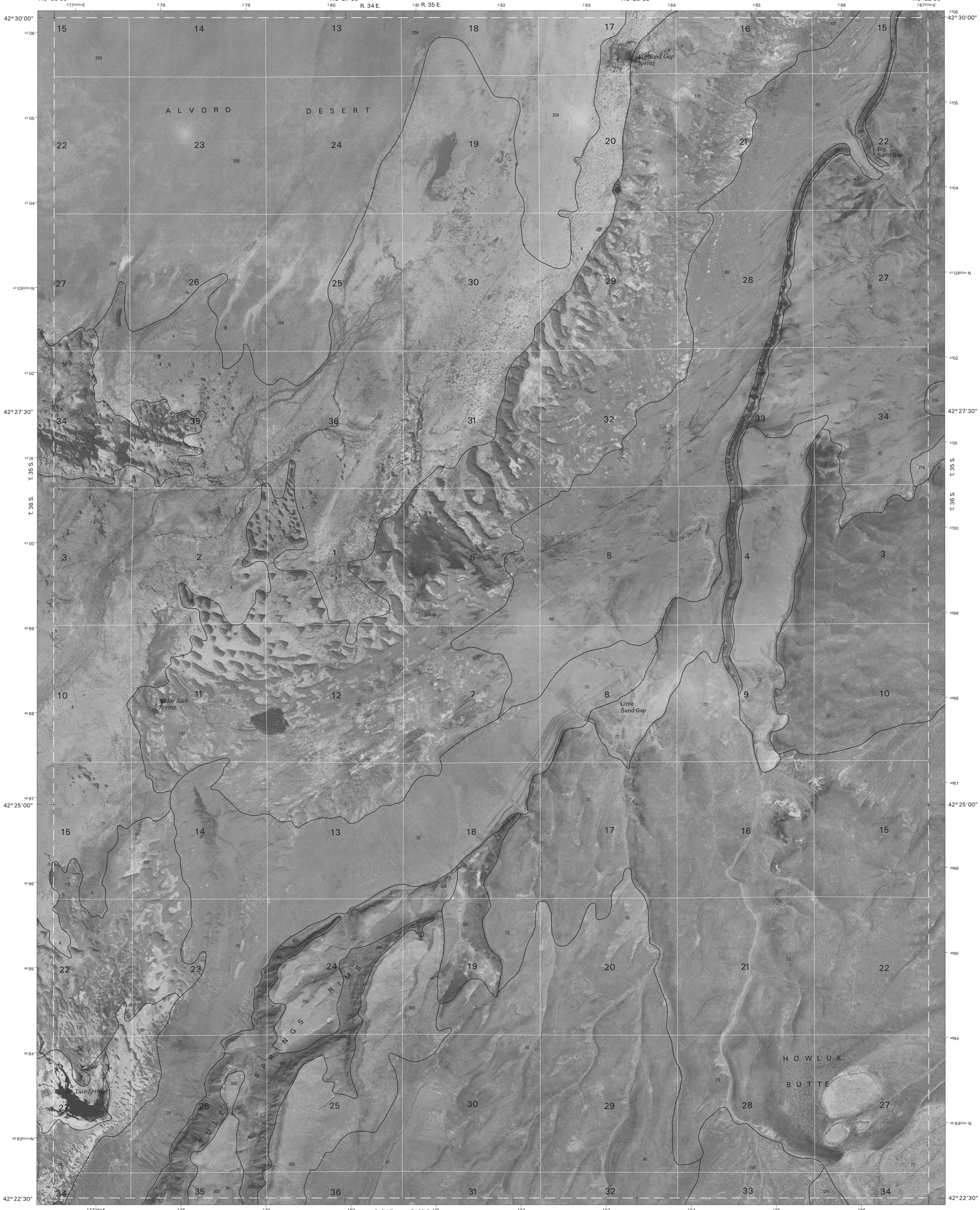
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ANDREWS, OREGON
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SHEET NUMBER 178 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
TULE SPRINGS QUADRANGLE
SHEET NUMBER 179 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

168	169	170	168 ALVORD HOT SPRINGS 169 MIRANDA FLAT SW 170 MIRANDA FLAT SE
178		180	178 ANDREWS 180 TULE SPRINGS NE
188	189	190	188 BORAX LAKE 189 RED LOOKOUT BUTTE 190 RED MOUNTAIN

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TULE SPRINGS, OREGON

7.5 MINUTE SERIES
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HARNEY COUNTY AREA, OREGON
TULE SPRINGS NE QUADRANGLE
SHEET NUMBER 180 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

169	170	171
179		181
189	190	191

169 MIRANDA FLAT SW
170 MIRANDA FLAT SE
171 COYOTE LAKE WEST
179 TULE SPRINGS
181 COYOTE MEADOWS
189 RED LOOKOUT BUTTE
190 RED MOUNTAIN
191 WHITEHORSE RANCH

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TULE SPRINGS NE, OREGON

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HARNEY COUNTY AREA, OREGON
COYOTE MEADOWS QUADRANGLE
SHEET NUMBER 181 OF 221

118°15′00″ 118°12′30″ 118°10′00″ 118°07′30″

42°30′00″ 42°27′30″ 42°25′00″ 42°22′30″

R. 36 E.

T. 35 S.
T. 36 S.

MALHEUR COUNTY

Coyote Meadows Well

Whitehorse Creek

Fox Creek

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

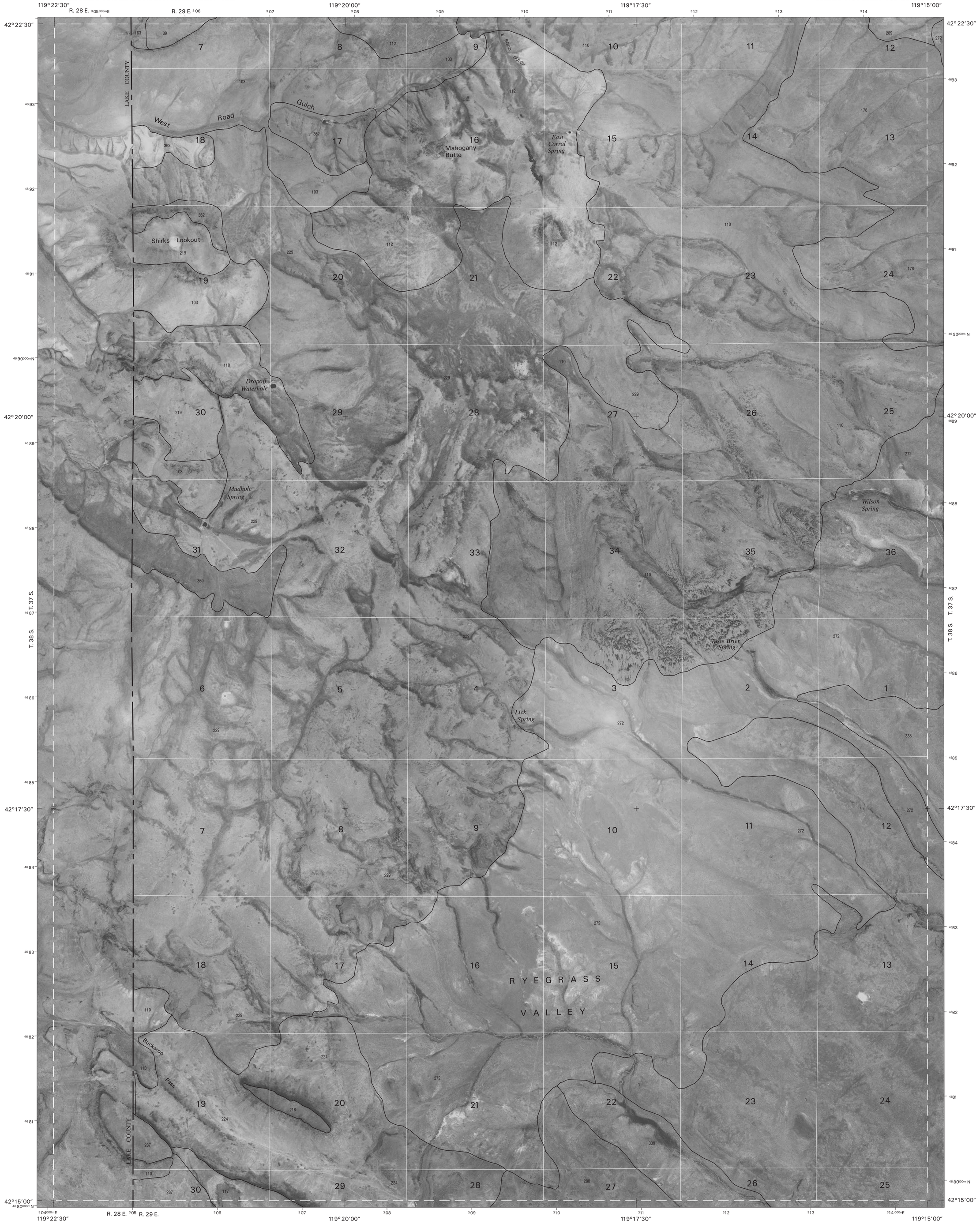
170	171		170 MIRANDA FLAT SE 171 COYOTE LAKE WEST
180			180 TULE SPRINGS NE
190	191		190 RED MOUNTAIN 191 WHITEHORSE RANCH

COYOTE MEADOWS, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 181 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
MAHOGANY BUTTE QUADRANGLE
SHEET NUMBER 182 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

	172	173	172 BEATYS BUTTE 173 FISH FIN RIM
		183	183 SURVEYORS LAKE
	192	193	192 CHIMNEY ROCK 193 ACTY MOUNTAIN NW

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HARNEY COUNTY AREA, OREGON
SURVEYORS LAKE QUADRANGLE
SHEET NUMBER 183 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH



QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

172	173	174	172 BEATYS BUTTE 173 FISH FIN RIM 174 COYOTE GAP
182		184	182 MAHOGANY BUTTE 184 COYOTE GAP SE
192	193	194	192 CHIMNEY ROCK 193 ACTY MOUNTAIN NW 194 ACTY MOUNTAIN NE

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HARNEY COUNTY AREA, OREGON
COYOTE GAP SE QUADRANGLE
SHEET NUMBER 184 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

173	174	175	173 FISH FIN RIM 174 COYOTE GAP 175 GARRISON LAKE
183		185	183 SURVEYORS LAKE 185 SQUARE MOUNTAIN
193	194	195	193 ACTY MOUNTAIN NW 194 ACTY MOUNTAIN NE 195 ROBBERS ROOST

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COYOTE GAP SE, OREGON

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HARNEY COUNTY AREA, OREGON
SQUARE MOUNTAIN QUADRANGLE
SHEET NUMBER 185 OF 221

119° 00′ 00″ — 118° 57′ 30″ — 118° 55′ 00″ — 118° 52′ 30″
42° 22′ 30″ — 42° 20′ 00″ — 42° 17′ 30″ — 42° 15′ 00″
R. 32 E. — R. 32½ E. — R. 33 E.
T. 36 S. — T. 37 S. — T. 38 S.

Bass Haines Place
CATLOW VALLEY
SLICKEY LAKE
The Troughs
McDade Cache
CATLOW RIM
Square Mountain
Square Mountain Creek
Lewis Flat
Raz
Deadman Canyon
Box Canyon Creek
BASQUE HILLS

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

174	175	176
184		186
194	195	196

174 COYOTE GAP
175 GARRISON LAKE
176 SKULL CREEK BUTTE
184 COYOTE GAP SE
186 FIELDS BASIN
194 ACTY MOUNTAIN NE
195 ROBBERS ROOST
196 RINCON FLAT

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SQUARE MOUNTAIN, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
FIELDS BASIN QUADRANGLE
SHEET NUMBER 186 OF 221

118°52′30″ 118°50′00″ 118°47′30″ 118°45′00″
42°22′30″ 42°20′00″ 42°17′30″ 42°15′00″
R. 32½ E. R. 32¾ E. R. 33 E. R. 34 E.
T. 37 S. T. 36 S. T. 38 S.
3 46 000m E 3 47 3 48 3 49 3 50 3 51 3 52 3 53 3 54 3 55 3 56 000m E
4692 4691 4690 4689 000m N 4688 4687 4686 4685 4684 4683 4682 4681 4680 4679 000m N

RIM
Road
Canyon
CATLOW
Long
Hollow
Pearl
Wise
Bradley Lake
Blair
Canyon
FIELDS
BASIN
Fields
Creek
Square
Mtn.
Creek
Babes
Canyon
Fields
Williams
Canyon
Mahogany
Point
Canyon
Box
Mahogany
Rim
Rincon
Lake
Rincon
Creek
PUEBLO
MTS
Creek
Canyon

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

175	176	177	175 GARRISON LAKE 176 SKULL CREEK BUTTE 177 V LAKE
185		187	185 SQUARE MOUNTAIN 187 FIELDS
195	196	197	195 ROBBERS ROOST 196 RINCON FLAT 197 LADYCOMB PEAK

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FIELDS BASIN, OREGON

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HARNEY COUNTY AREA, OREGON
FIELDS QUADRANGLE
SHEET NUMBER 187 OF 221

118° 45′ 00″ — 118° 42′ 30″ — R. 32 3/4 E. — R. 33 E. — 118° 40′ 00″ — 118° 37′ 30″
42° 22′ 30″ — 42° 20′ 00″ — 42° 17′ 30″ — 42° 15′ 00″
T. 36 S. — T. 37 S. — T. 38 S.
4692 — 4691 — 4690 — 4689000m N — 4688 — 4687 — 4686 — 4685 — 4684 — 4683 — 4682 — 4681 — 4680 — 4679000m N
356000m E — 357 — 358 — 359 — 360 — 361 — 362 — 363 — 364 — 365 — 366000m E

Cottonwood Creek
Scoubes Creek
THE PEAKS
MOUNTAIN
STEENS
PUEBLO
VALLEY
Alvord Peak
Buckwilder Pass
Road Canyon
Long Hollow
Long Hollow Summit
Red Mountain
Dry Lake
Pedro Spring
Fields
Babes Canyon
Williams Fields Creek
Canyon
205

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

176	177	178
186		188
196	197	198

176 SKULL CREEK BUTTE
177 V LAKE
178 ANDREWS
186 FIELDS BASIN
188 BORAX LAKE
196 RINCON FLAT
197 LADYCOMB PEAK
198 TUMTUM LAKE

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HARNEY COUNTY AREA, OREGON
BORAX LAKE QUADRANGLE
SHEET NUMBER 188 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

177	178	179	177 V LAKE 178 ANDREWS 179 TULE SPRINGS
187		189	187 FIELDS 189 RED LOOKOUT BUTTE
197	198	199	197 LADYCOMB PEAK 198 TUMTUM LAKE 199 TROUT CREEK CANYON

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HARNEY COUNTY AREA, OREGON
RED LOOKOUT BUTTE QUADRANGLE
SHEET NUMBER 189 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

178	179	180
188		190
198	199	200

178 ANDREWS
179 TULE SPRINGS
180 TULE SPRINGS NE
188 BORAX LAKE
190 RED MOUNTAIN
198 TUMTUM LAKE
199 TROUT CREEK CANYON
200 POLE CANYON

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RED LOOKOUT BUTTE, OREGON

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HARNEY COUNTY AREA, OREGON
RED MOUNTAIN QUADRANGLE
SHEET NUMBER 190 OF 221

RED MOUNTAIN

R. 35 E. R. 36 E. R. 37 E. R. 38 E.

T. 36 S. T. 37 S. T. 38 S.

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″

42°22′30″ 42°20′00″ 42°17′30″ 42°15′00″

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

179	180	181	179 TULE SPRINGS 180 TULE SPRINGS NE 181 COYOTE MEADOWS
189		191	189 RED LOOKOUT BUTTE 191 WHITEHORSE RANCH
199	200	201	199 TROUT CREEK CANYON 200 POLE CANYON 201 LITTLE WHITEHORSE CREEK

RED MOUNTAIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 190 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
WHITEHORSE RANCH QUADRANGLE
SHEET NUMBER 191 OF 221

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

INDEX TO ADJOINING 7.5 MAPS

180 TULE SPRINGS NE
181 COYOTE MEADOWS
190 RED MOUNTAIN
200 POLE CANYON
201 LITTLE WHITEHORSE CREEK

WHITEHORSE RANCH, OREGON
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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
CHIMNEY ROCK QUADRANGLE
SHEET NUMBER 192 OF 221

119°22′30″ 304000mE 305 306 307 119°20′00″ 308 309 R. 29 E. 310 119°17′30″ 311 312 313 314000mE 119°15′00″
42°15′00″ 4680 4679 4678 4677000mN 4676 42°12′30″ 4675 4674 4673 4672 4671 42°10′00″ 4670 4669 4668 4667000mN 42°07′30″
T. 38 S. T. 39 S. T. 40 S.

LAKE COUNTY
Twin Reservoirs
Lake Waterhole
Mud Pot Waterhole
Chimney Rock
Hen Sage Canyon
South Corral Spring

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

	182	183	182 MAHOGANY BUTTE 183 SURVEYORS LAKE
		193	193 ACTY MOUNTAIN NW
	202	203	202 SAGE HEN FLATS 203 ACTY MOUNTAIN

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CHIMNEY ROCK, OREGON

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HARNEY COUNTY AREA, OREGON
ACTY MOUNTAIN NW QUADRANGLE
SHEET NUMBER 193 OF 221

119°15′00″ — R. 29 E. — 315 000mE — R. 30 E. — 316 — 317 — 318 — 119°12′30″ — 319 — 320 — 321 — 119°10′00″ — 322 — 323 — 324 — R. 30 E. — 119°07′30″ — R. 31 E.

42°15′00″ — 4679 — 4678 — 4677 — 4676 000mN — 4675 — 42°12′30″ — 4674 — 4673 — 4672 — 4671 — 42°10′00″ — 4670 — 4669 — 4668 — 4667 — 4666 000mN — 42°07′30″

T. 38 S. — T. 39 S. — T. 40 S.

Shallow Lake — BUTCHER — FLAT

Butch Reservoir — *Gaston Reservoir* — *Swede Reservoir* — *Shelby Reservoir* — *Bald Mountain*

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1 MILES

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 0 1 KILOMETERS

182	183	184
192		194
202	203	204

182 MAHOGANY BUTTE
183 SURVEYORS LAKE
184 COYOTE GAP SE
192 CHIMNEY ROCK
194 ACTY MOUNTAIN NE
202 SAGE HEN FLATS
203 ACTY MOUNTAIN
204 HAWKS MOUNTAIN

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ACTY MOUNTAIN NW, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 193 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
ACTY MOUNTAIN NE QUADRANGLE
SHEET NUMBER 194 OF 221

119° 07′ 30″ — 119° 05′ 00″ — 119° 02′ 30″ — 119° 00′ 00″
42° 15′ 00″ — 42° 12′ 30″ — 42° 10′ 00″ — 42° 07′ 30″
R. 31 E. — R. 32 E.
T. 38 S. — T. 39 S. — T. 40 S.
3 25 000m E — 3 26 — 3 27 — 3 28 — 3 29 — 3 30 — 3 31 — 3 32 — 3 33 — 3 34 — 3 35 000m E
4679 — 4678 — 4677 — 4676 000m N — 4675 — 4674 — 4673 — 4672 — 4671 — 4670 — 4669 — 4668 — 4667 — 4666 000m N

HILLS
FLAT
BUTCHER
BASQUE
Funnel
Canyon
Creek
Red Waterhole
LONE MOUNTAIN
HAWKS VALLEY

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

183	184	185	183 SURVEYORS LAKE 184 COYOTE GAP SE 185 SQUARE MOUNTAIN
193		195	193 ACTY MOUNTAIN NW 195 ROBBERS ROOST
203	204	205	203 ACTY MOUNTAIN 204 HAWKS MOUNTAIN 205 BLACK ROCK SPRING

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ACTY MOUNTAIN NE, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 194 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
ROBBERS ROOST QUADRANGLE
SHEET NUMBER 195 OF 221

119°00′00″ 118°57′30″ 118°55′00″ 118°52′30″
42°15′00″ 42°12′30″ 42°10′00″ 42°07′30″
R. 32 E. R. 33 E.
T. 38 S. T. 39 S. T. 40 S.

Raz Lewis Flat
Deadman Canyon
HILLS
BASQUE
Funnel Canyon Reservoir
Canyon
RIM
Creek
Funnel
CATLOW
Canyon
Box
Holmes Reservoir No 2
Box
Canyon
Robbers Roost
Creek
Hollow
Long
LONE
MOUNTAIN
Whiskey Canyon Spring Reservoir

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

184	185	186	184 COYOTE GAP SE 185 SQUARE MOUNTAIN 186 FIELDS BASIN
194		196	194 ACTY MOUNTAIN NE 196 RINCON FLAT
204	205	206	204 HAWKS MOUNTAIN 205 BLACK ROCK SPRING 206 OREGON END TABLE

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ROBBERS ROOST, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 195 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
RINCON FLAT QUADRANGLE
SHEET NUMBER 196 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

185	186	187
195		197
205	206	207

185 SQUARE MOUNTAIN
186 FIELDS BASIN
187 FIELDS
195 ROBBERS ROOST
197 LADYCOMB PEAK
205 BLACK ROCK SPRING
206 OREGON END TABLE
207 VAN HORN BASIN

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RINCON FLAT, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 196 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
LADYCOMB PEAK QUADRANGLE
SHEET NUMBER 197 OF 221

118°45′00″ 118°42′30″ 118°40′00″ 118°37′30″
42°15′00″ 42°12′30″ 42°10′00″ 42°07′30″
R. 34 E. R. 35 E.
T. 38 S. T. 39 S. T. 40 S.
4678 4677 4676 4675 000m N 4674 4673 4672 4671 4670 4669 4668 4667 4666 4665 000m N
356 000m E 357 358 359 360 361 362 363 364 365 366 000m E

Fields Creek
Williams Canyon
Creek
Sesenta
Creek
Creek
Creek
Creek
Creek
Creek
Horse Creek
Horse Creek
Little Willow Creek
Willow Creek
Willow Creek
Creek
Creek
Creek
Creek
Creek

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
TUMTUM LAKE QUADRANGLE
SHEET NUMBER 198 OF 221

118°37′30″ — 118°35′00″ — 118°32′30″ — 118°30′00″
42°15′00″ — 42°12′30″ — 42°10′00″ — 42°07′30″
R. 35 E. — R. 36 E.
T. 38 S. — T. 39 S. — T. 40 S.

Trout Creek
Willow Creek
Little Cottonwood Creek
Cottonwood Creek
Arizona Creek
Catlow Creek
Pueblo Slough
Trout Creek
South Branch
PUEBLO MOUNTAINS
PUEBLO VALLEY
Snake Den Butte
Little Butte Well
Tumtum Lake

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES: 1 0 1

FEET: 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS: 1 0 1

187	188	189
197		199
207	208	209

187 FIELDS
188 BORAX LAKE
189 RED LOOKOUT BUTTE
197 LADYCOMB PEAK
199 TROUT CREEK CANYON
207 VAN HORN BASIN
208 COLONY RANCH
209 WINDY POINT

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TUMTUM LAKE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 198 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
TROUT CREEK CANYON QUADRANGLE
SHEET NUMBER 199 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

188	189	190	188 BORAX LAKE 189 RED LOOKOUT BUTTE 190 RED MOUNTAIN
198		200	198 TUMTUM LAKE 200 POLE CANYON
208	209	210	208 COLONY RANCH 209 WINDY POINT 210 THE V

INDEX TO ADJOINING 7.5 MAPS

TROUT CREEK CANYON, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 199 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
POLE CANYON QUADRANGLE
SHEET NUMBER 200 OF 221

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″
42°15′00″ 42°12′30″ 42°10′00″ 42°07′30″
R. 37 E. R. 38 E.
T. 38 S. T. 39 S. T. 40 S.

Flagstaff Butte
Willow Butte
Lonely Reservoir
Trout Creek
Little Trout Creek
Big Trout Creek
Rosebriar Creek
Pole Canyon Creek
Mahogany Ridge
Cove Canyon
Little Table Seep
Pole Patch Springs
CENTER RIDGE
TROUT CREEK MOUNTAINS

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES 1 0 1

FEET 1000 0 1000 2000 3000 4000 5000 6000 7000

KILOMETERS 1 0 1

189	190	191	189 RED LOOKOUT BUTTE 190 RED MOUNTAIN 191 WHITEHORSE RANCH
199		201	199 TROUT CREEK CANYON 201 LITTLE WHITEHORSE CREEK
209	210	211	209 WINDY POINT 210 THE V 211 CHICKEN SPRING

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POLE CANYON, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 200 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
LITTLE WHITEHORSE CREEK QUADRANGLE
SHEET NUMBER 201 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

190	191		190 RED MOUNTAIN 191 WHITEHORSE RANCH
200			200 POLE CANYON
210	211		210 THE V 211 CHICKEN SPRING

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LITTLE WHITEHORSE CREEK, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 201 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

HARNEY COUNTY AREA, OREGON
SAGE HEN FLATS QUADRANGLE
SHEET NUMBER 202 OF 221

119°22′30″ — 119°20′00″ — 119°17′30″ — 119°15′00″
42°07′30″ — 42°05′00″ — 42°02′30″ — 42°00′00″
R. 29 E.
T. 40 S. — T. 41 S.

LAKE COUNTY
The Potholes
Rock Reservoir
Sage Hen Creek
Dixon Waterhole
SAGE HEN FLATS
SAGE HEN HILLS

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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	192	193	192 CHIMNEY ROCK 193 ACTY MOUNTAIN NW
		203	203 ACTY MOUNTAIN
	212	213	212 SAGE HEN HILLS 213 BIG SPRING BUTTE

SAGE HEN FLATS, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 202 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
ACTY MOUNTAIN QUADRANGLE
SHEET NUMBER 203 OF 221

Snip Waterhole
Bald Mtn Reservoir
Acty Mountain
Halfway Reservoir
Rastus Waterhole
Dutch Waterhole
Stallion Waterhole
SAGE HEN HILLS
HAWKSY
WALKSY
T. 40 S.
T. 41 S.

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

192	193	194	192 CHIMNEY ROCK 193 ACTY MOUNTAIN NW 194 ACTY MOUNTAIN NE
202		204	202 SAGE HEN FLATS 204 HAWKS MOUNTAIN
212	213	214	212 SAGE HEN HILLS 213 BIG SPRING BUTTE 214 THOUSAND CREEK SPRING

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ACTY MOUNTAIN, OREGON

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SHEET NUMBER 203 OF 221

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HARNEY COUNTY AREA, OREGON
HAWKS MOUNTAIN QUADRANGLE
SHEET NUMBER 204 OF 221

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

193	194	195	193 ACTY MOUNTAIN NW 194 ACTY MOUNTAIN NE 195 ROBBERS ROOST
203		205	203 ACTY MOUNTAIN 205 BLACK ROCK SPRING
213	214	215	213 BIG SPRING BUTTE 214 THOUSAND CREEK SPRING 215 THOUSAND CREEK GORGE

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HAWKS MOUNTAIN, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 204 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
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HARNEY COUNTY AREA, OREGON
BLACK ROCK SPRING QUADRANGLE
SHEET NUMBER 205 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

194	195	196	194 ACTY MOUNTAIN NE 195 ROBBERS ROOST 196 RINCON FLAT
204		206	204 HAWKS MOUNTAIN 206 OREGON END TABLE
214	215	216	214 THOUSAND CREEK SPRING 215 THOUSAND CREEK GORGE 216 BOG HOT SPRINGS

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BLACK ROCK SPRING, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 205 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
OREGON END TABLE QUADRANGLE
SHEET NUMBER 206 OF 221

118°52′30″ 118°50′00″ 118°47′30″ 118°45′00″
42°07′30″ 42°05′00″ 42°02′30″ 42°00′00″
R. 33 E. R. 34 E.
T. 40 S. T. 41 S.

OREGON END TABLE PUEBLO MOUNTAINS

Rincon Creek
Rough Canyon
Modesto Creek
Oregon End Reservoir
Stonehouse Creek
East Creek
Deep Creek
Rincon Creek
Long Draw

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

195	196	197	195 ROBBERS ROOST 196 RINCON FLAT 197 LADYCOMB PEAK
205		207	205 BLACK ROCK SPRING 207 VAN HORN BASIN
215	216	217	215 THOUSAND CREEK GORGE 216 BOG HOT SPRINGS 217 DENIO

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OREGON END TABLE, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 206 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
VAN HORN BASIN QUADRANGLE
SHEET NUMBER 207 OF 221



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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

196	197	198
206		208
216	217	218

196 RINCON FLAT
197 LADYCOMB PEAK
198 TUMTUM LAKE
206 OREGON END TABLE
208 COLONY RANCH
216 BOG HOT SPRINGS
217 DENIO
218 WILDER CREEK RANCH

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VAN HORN BASIN, OREGON

7.5 MINUTE SERIES
SHEET NUMBER 207 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
COLONY RANCH QUADRANGLE
SHEET NUMBER 208 OF 221

118° 37′ 30″ — 118° 35′ 00″ — 118° 32′ 30″ — 118° 30′ 00″
42° 07′ 30″ — 42° 05′ 00″ — 42° 02′ 30″ — 42° 00′ 00″
3 66 000m E — 3 67 — 3 68 — 3 69 — 3 70 — 3 71 — R. 35 E. — 3 72 — R. 36 E. — 3 73 — 3 74 — 3 75 — 3 76 000m E
4 61 000m N — 4 60 — 4 59 — 4 58 — 4 57 — 4 56 — 4 55 — 4 54 — 4 53 — 4 52 — 4 51 000m N
T. 41 S. T. 40 S.

P U E B L O
Red Point
M O U N T A I N S
V A L L E Y
S A N D H I L L S
Mapes Flat
South Sand Hills Well
Pueblo Well
Oliver Creek
Pueblo Slough
Colony Creek
Cherry Creek
Van Horn Creek
Cottonwood Creek
Antelope Cr
Oreana Cr
Long Canyon
Wilder Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

197	198	199	197 LADYCOMB PEAK 198 TUMTUM LAKE 199 TROUT CREEK CANYON
207		209	207 VAN HORN BASIN 209 WINDY POINT
217	218	219	217 DENIO 218 WILDER CREEK RANCH 219 TRIDENT PEAK

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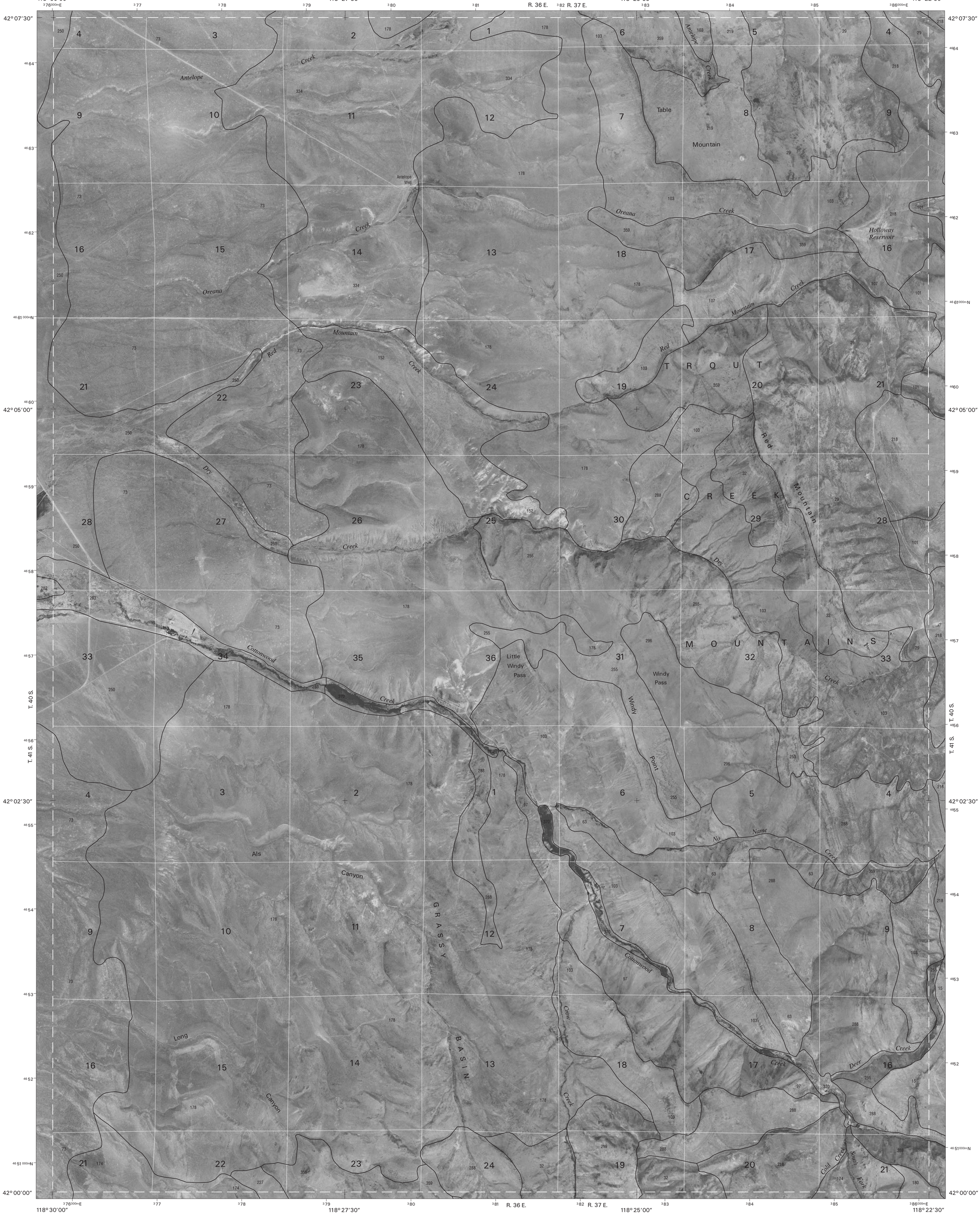
COLONY RANCH, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

UNITED STATES
DEPARTMENT OF AGRICULTURE
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HARNEY COUNTY AREA, OREGON
WINDY POINT QUADRANGLE
SHEET NUMBER 209 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

198	199	200
208		210
218	219	220

198 TUMTUM LAKE
199 TROUT CREEK CANYON
200 POLE CANYON
208 COLONY RANCH
210 THE V
218 WILDER CREEK RANCH
219 TRIDENT PEAK
220 HOLLOWAY MOUNTAIN

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
THE V QUADRANGLE
SHEET NUMBER 210 OF 221

118°22′30″ 118°20′00″ 118°17′30″ 118°15′00″
42°07′30″ 42°05′00″ 42°02′30″ 42°00′00″
R. 37 E. R. 38 E.
T. 40 S. T. 41 S.

MAHOGANY RIDGE
CENTER RIDGE
SMITH FIELD
TROUT CREEK MOUNTAINS
THE V
Stony Creek
Big Trout Creek
Little Trout Creek
Willow Creek
East Fork Trout Creek
Stony Spring
Dry Creek
Government Corral
Cabin Creek
Rock Creek
Catlow Peak
Deer Creek
Burro Creek
Middle Canyon
Corral Canyon
Marking Creek
Cottonwood Creek
No Name Creek
Coffee Creek
Kings River
East Basin

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

199	200	201
209		211
219	220	221

199 TROUT CREEK CANYON
200 POLE CANYON
201 LITTLE WHITEHORSE CREEK
209 WINDY POINT
211 CHICKEN SPRING
219 TRIDENT PEAK
220 HOLLOWAY MOUNTAIN
221 DISASTER PEAK

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HARNEY COUNTY AREA, OREGON
CHICKEN SPRING QUADRANGLE
SHEET NUMBER 211 OF 221

118°15′00″ 118°12′30″ 118°10′00″ 118°07′30″
42°07′30″ 42°05′00″ 42°02′30″ 42°00′00″
R. 38 E.
T. 40 S.
T. 41 S.
MALHEUR COUNTY
SHERMAN FIELD
T R O U T C R E E K M O U N T A I N S
Willow Creek
Whitehorse Creek
Little Whitehorse Creek
McDermitt Creek
North Fork McDermitt Creek
Dry Creek
Big Trout Creek
Sucker Creek

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North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

MILES

FEET

KILOMETERS

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200 POLE CANYON
201 LITTLE WHITEHORSE CREEK
210 THE V
220 HOLLOWAY MOUNTAIN
221 DISASTER PEAK

CHICKEN SPRING, OREGON
7.5 MINUTE SERIES
SHEET NUMBER 211 OF 221

Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
SAGE HEN HILLS QUADRANGLE
SHEET NUMBER 212 OF 221

119°22′30″ 119°20′00″ 119°17′30″ 119°15′00″

42°00′00″ 41°57′30″ 41°55′00″ 41°52′30″

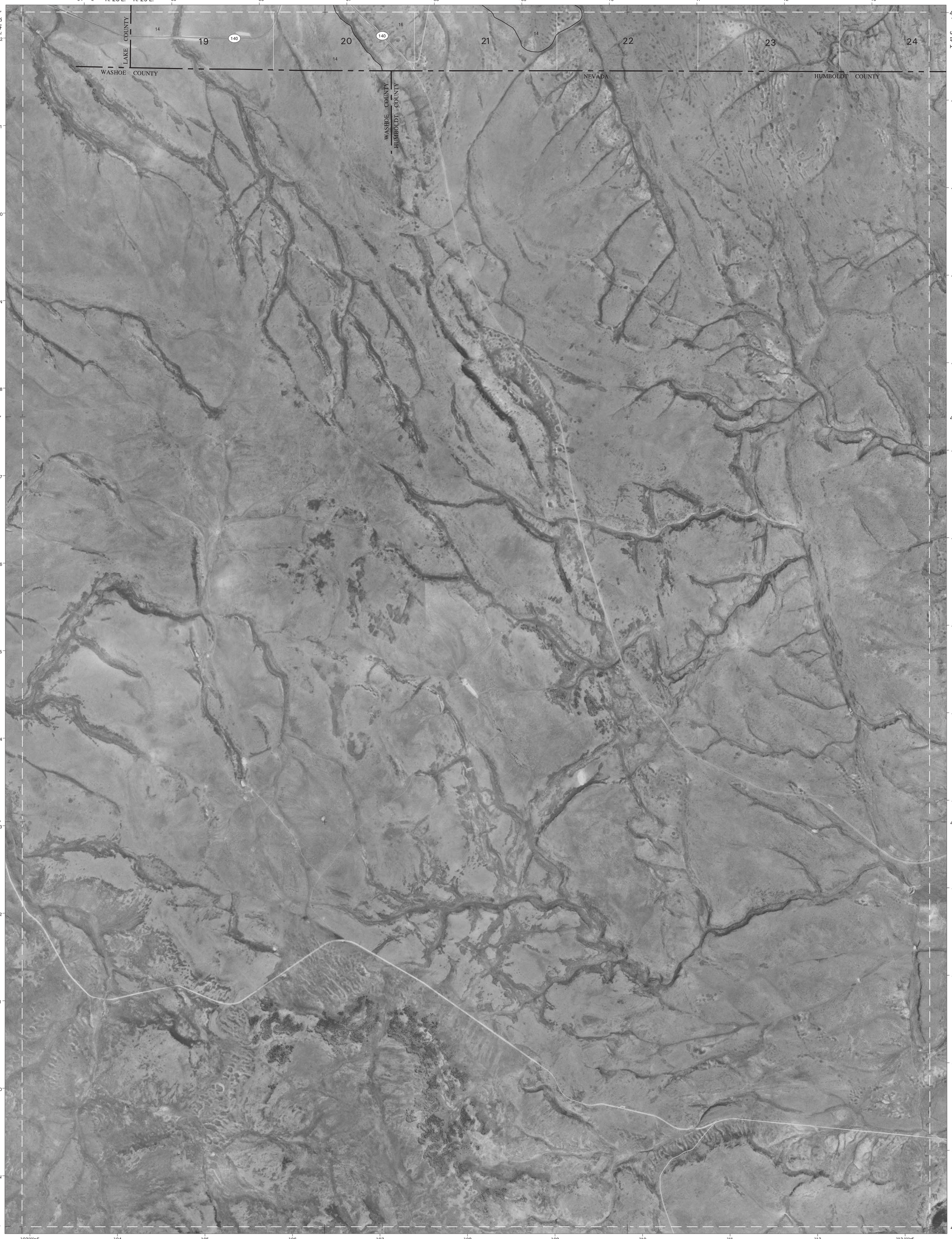
R. 28 E. R. 29 E.

T. 41 S.

LAKE COUNTY
WASHOE COUNTY
NEVADA
HUMBOLDT COUNTY

19 20 21 22 23 24

140



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

	202	203	202 SAGE HEN FLATS 203 ACTY MOUNTAIN
		213	213 BIG SPRING BUTTE

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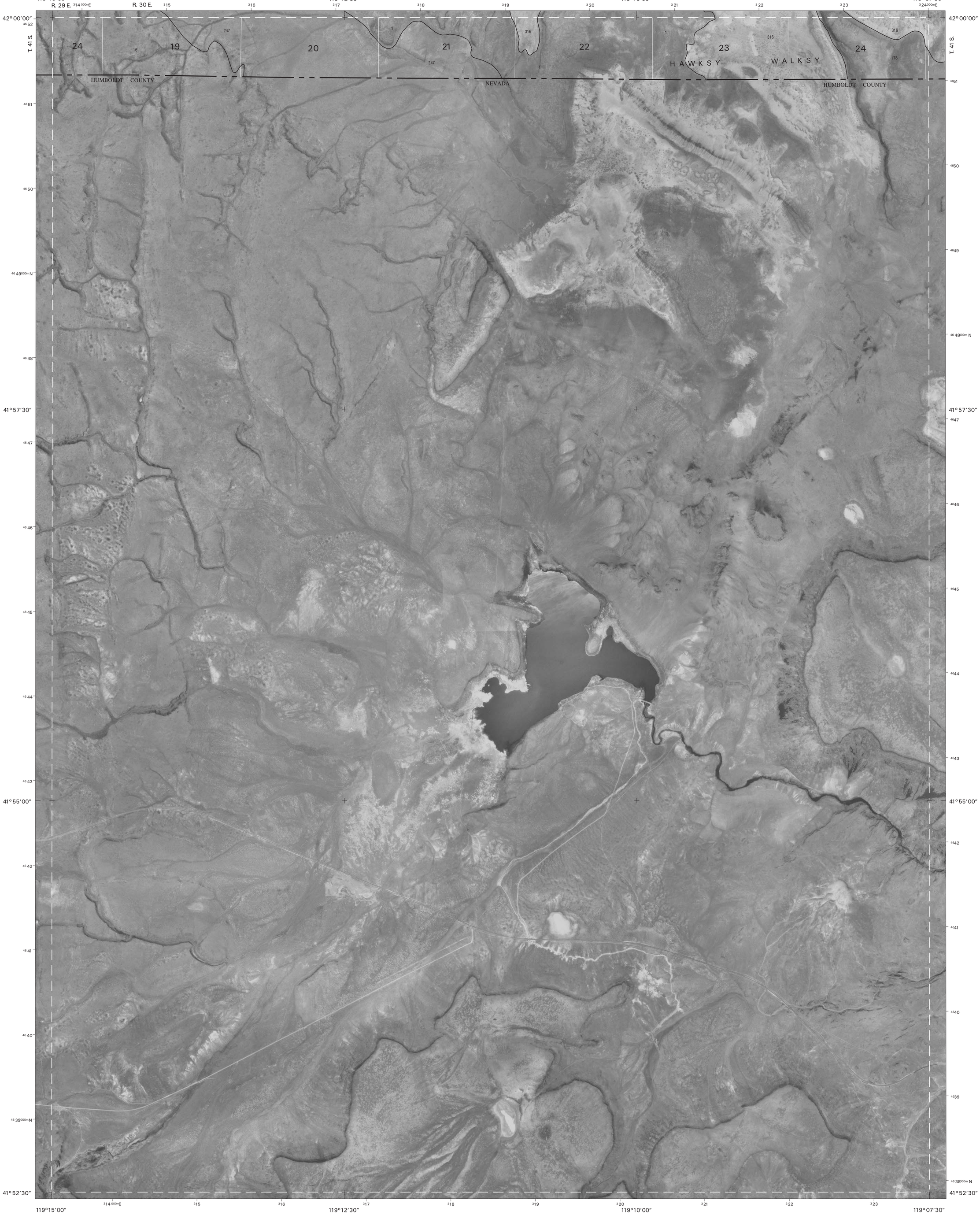
SAGE HEN HILLS, OREGON

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HARNEY COUNTY AREA, OREGON
BIG SPRING BUTTE QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

202	203	204
212		214

202 SAGE HEN FLATS
203 ACTY MOUNTAIN
204 HAWKS MOUNTAIN
212 SAGE HEN HILLS
214 THOUSAND CREEK SPRING

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HARNEY COUNTY AREA, OREGON
THOUSAND CREEK SPRING QUADRANGLE
SHEET NUMBER 214 OF 221

119° 07′ 30″ — 119° 05′ 00″ — 119° 02′ 30″ — 119° 00′ 00″
42° 00′ 00″ — 41° 57′ 30″ — 41° 55′ 00″ — 41° 52′ 30″
3 24 000m E — 3 25 — 3 26 — 3 27 — 3 28 — 3 29 — 3 30 — 3 31 — 3 32 — 3 33 — 3 34 000m E
4651 — 4650 — 4649 — 4648 000m N — 4647 — 4646 — 4645 — 4644 — 4643 — 4642 — 4641 — 4640 — 4639 — 4638 000m N

R. 31 E. R. 32 E.
T. 41 S.

HUMBOLDT COUNTY
NEVADA
HUMBOLDT COUNTY

Hawksy
Walksy

19 20 21 22 23 24 19

316 48 178 48 178 178 48 178 341 48 178 48

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

203	204	205
213		215

203 ACTY MOUNTAIN
204 HAWKS MOUNTAIN
205 BLACK ROCK SPRING
213 BIG SPRING BUTTE
215 THOUSAND CREEK GORGE

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HARNEY COUNTY AREA, OREGON
THOUSAND CREEK GORGE QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

204	205	206	204 HAWKS MOUNTAIN 205 BLACK ROCK SPRING 206 OREGON END TABLE
214		216	214 THOUSAND CREEK SPRING 216 BOG HOT SPRINGS

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BOG HOT SPRINGS QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

205	206	207
215		217

205 BLACK ROCK SPRING
206 OREGON END TABLE
207 VAN HORN BASIN
215 THOUSAND CREEK GORGE
217 DENIO

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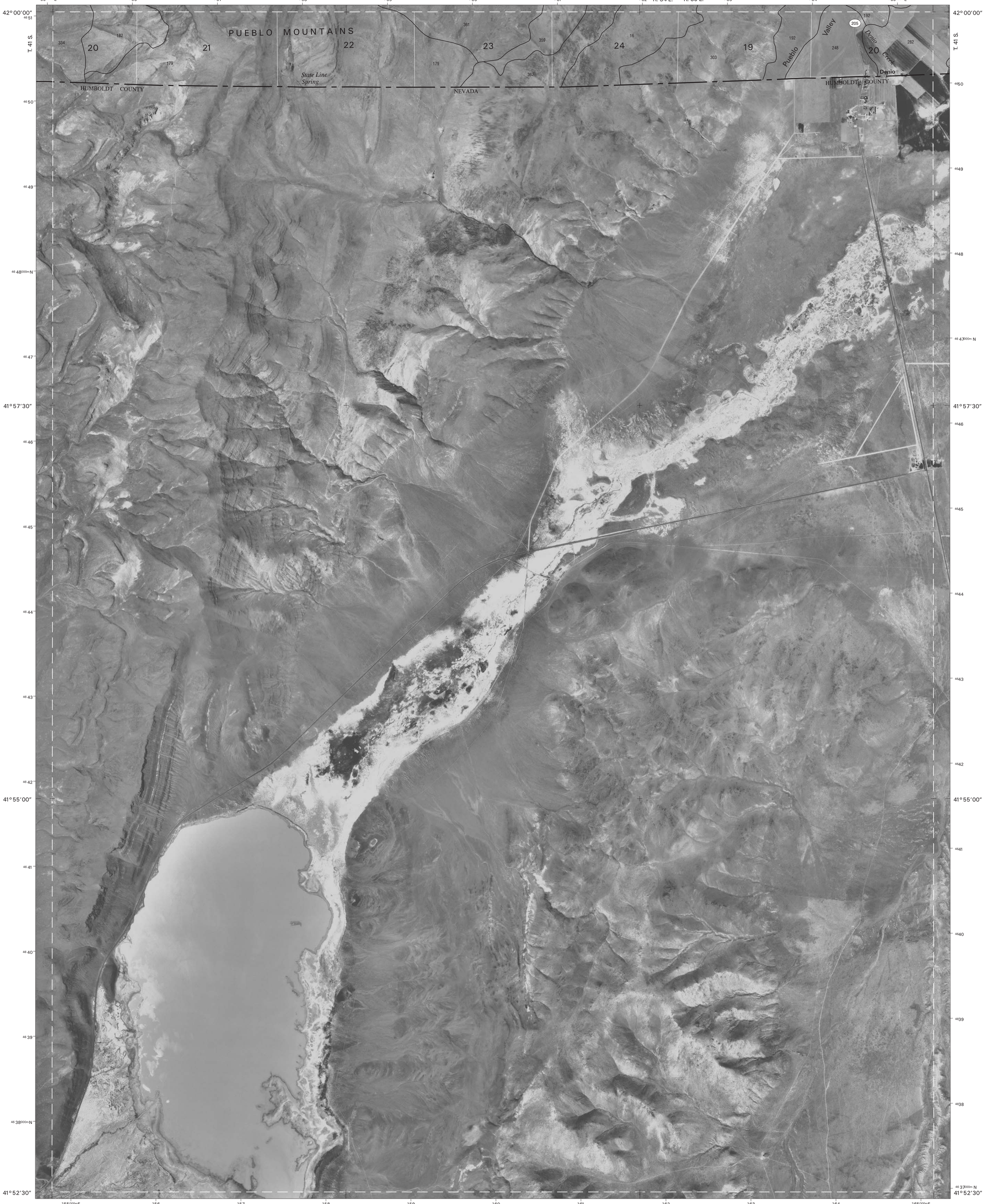
BOG HOT SPRINGS, OREGON

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HARNEY COUNTY AREA, OREGON
DENIO QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod 1000-meter ticks: Universal Transverse Mercator, zone 11. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

206	207	208	206 OREGON END TABLE 207 VAN HORN BASIN 208 COLONY RANCH 216 BOG HOT SPRINGS 218 WILDER CREEK RANCH
216		218	

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HARNEY COUNTY AREA, OREGON
WILDER CREEK RANCH QUADRANGLE
SHEET NUMBER 218 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

207	208	209	207 VAN HORN BASIN 208 COLONY RANCH 209 WINDY POINT 217 DENIO 219 TRIDENT PEAK
217		219	

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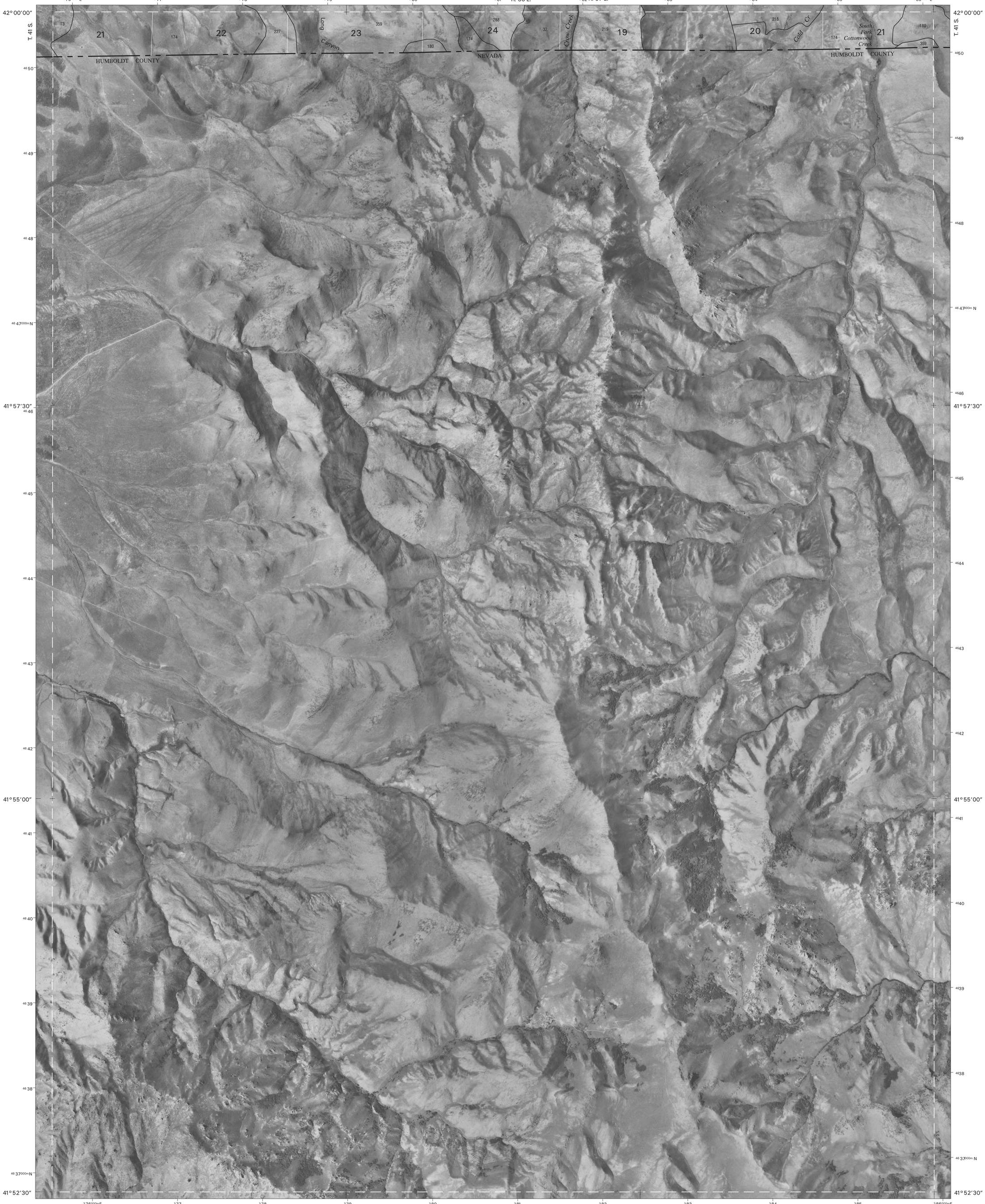
WILDER CREEK RANCH, OREGON

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Soil map delineations extending beyond the dashed white quadrangle neatline are for reference only and are included on adjacent map sheets.

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HARNEY COUNTY AREA, OREGON
TRIDENT PEAK QUADRANGLE
SHEET NUMBER 219 OF 221



This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

208	209	210	208 COLONY RANCH 209 WINDY POINT 210 THE V 218 WILDER CREEK RANCH 220 HOLLOWAY MOUNTAIN
218		220	

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HARNEY COUNTY AREA, OREGON
HOLLOWAY MOUNTAIN QUADRANGLE
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This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

209	210	211	209 WINDY POINT 210 THE V 211 CHICKEN SPRING
219		221	219 TRIDENT PEAK 221 DISASTER PEAK

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HARNEY COUNTY AREA, OREGON
DISASTER PEAK QUADRANGLE
SHEET NUMBER 221 OF 221

118°15′00″ 118°12′30″ 118°10′00″ 118°07′30″

42°00′00″ 41°57′30″ 41°55′00″ 41°52′30″

R. 38 E.

T. 41 S.

NEVADA

MALHEUR COUNTY
HUMBOLDT COUNTY

22 23 24

397000mE 398 399 400 401 402 403 404 405 406 407000mE

4650 4649 4648 4647000mN 4646 4645 4644 4643 4642 4641 4640 4639 4638 4637000mN

This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service. Base maps are orthophotographs prepared by the U.S. Department of the Interior, Geological Survey (USGS), from 1988 - 2001 aerial photography. Cultural information was derived from the USGS. Public land survey system (PLSS) was acquired from the U.S. Department of the Interior, Bureau of Land Management. Boundaries and PLSS were edited to conform with features represented on the publication orthophotography and to enhance the clarity of the soils information.

North American Datum of 1983 (NAD83). GRS - 80 Spheriod
1000-meter ticks: Universal Transverse Mercator, zone 11.
Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this quadrangle.

NORTH

QUADRANGLE LOCATION

SCALE 1:24000

1 0 1
MILES

1000 0 1000 2000 3000 4000 5000 6000 7000
FEET

1 0 1
KILOMETERS

210	211	
220		

210 THE V
211 CHICKEN SPRING
220 HOLLOWAY MOUNTAIN

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DISASTER PEAK, OREGON
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